

Early Narrow gauge - Part 3 Military Field Railways

By Peter Crush [柯睿思] & Shang Baiyu [尚白宇]

Introduction

In this next part we shall first take a look at military rail lines constructed by the Chinese government in a then obscure port marked on Western mariners' charts as "Port Arthur" but which for centuries had been known to the Chinese as the sheltered trading junk harbour of Lushunkou (旅顺口), located near the southern tip of the Liaodong Peninsula in China's remote north-east. Following this we look at surviving records of the military "feldbahn" lines erected by the Germans as participants in Eight-Powers foreign expeditionary force which invaded China during the "Boxer" uprising of 1900.

(a) Port Arthur (旅顺 Lushun) 1883-1905

The first hints of a narrow-gauge line built in China, which survived with some permanency, appears to be a military line commissioned under the instructions of Li Hung Chang (*Li Hongzhang*) in the early 1880s. At this time, Li was Governor-General ("Viceroy")¹ of Chihli (*Zhili* 直隶) Province and he concurrently also served as the Commissioner for the Beiyang Military and Northern Ports². Li's intention was to create a modern fleet of naval warships purchased from Britain and Germany with its main base at Lushun.

There are suggestions in a number of historic sources that the steel track and locomotives of the dismantled 'Woosung Road' line (*Wusong Railway*) were shipped over from Taiwan to Port Arthur³ (Lushun) for use on harbour improvements and construction of military fortifications on the hillsides. However, detail about the amount of ex-Wusong line equipment used is scanty. We are inclined to believe that it is highly likely that these ex-Shanghai locomotives were shipped to Port Arthur, given that Li Hongzhang was the driving force behind this project. He was fully cognizant about the railway plant having been purchased by the Chinese government in 1877, disassembled and shipped to Taiwan where it still lay rusting and unused. Moreover, funds for the harbour improvement project were very short and Li would have wanted to make use of all available existing assets rather than buying all new equipment. Historical references subject of the Wusong railway equipment being shipped to Lushun from Taiwan via Shanghai have been investigated by a number of Taiwanese railway historians⁴

However, the most compelling evidence in our assessment is a short news report in the English language "China Mail" published in Hong Kong on 26 January 1885. This involved a collision at Port Arthur in late 1884 between two locomotives resulting in the death of a foreign driver. The date of this accident precedes the award of a contract to Tianjin-based French engineer Théveret's syndicate for completing the harbour improvements following the failings between 1880-1884 due to poor workmanship by local contractors and a number of German advisers. One of these was a man named Contantin von Hannenken who

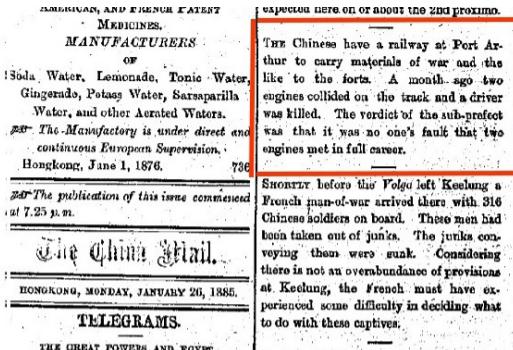
¹ Europeans traditionally referred to a provincial Governor-General as the "Viceroy"

² Commissioner for the Northern Ports 北洋大臣 (Beiyang Dachen)

³ Port Arthur was so-named on Western naval charts and maps after a British Royal Navy Lieutenant named William Arthur who surveyed the harbour in the gunboat HMS *Algerine* in 1860. Following Japan's seizure of the Liaotung (辽东 *Liaodong*) Peninsula in 1894 -95 the name was transliterated as ' Ryojun ' based on the Japanese pronunciation of the Chinese name Lushun (旅顺)

⁴ See "重回清代臺北車站：古鐵道和一座謎樣的火車站" (Taiwan Railway Stations – Looking Back from the Qing Dynasty) [Chinese text only] by WU Hseao-hung 吳小虹, published in Taiwan 2006. Wu corresponded with P. Crush on this topic and stated there are four references to the equipment being transferred to Lushun between 1878 and 1883 in the Chinese newspaper Shen Bao (申報)

managed to create a myth about his great importance in the Western press, but more on this particular man later. The fact that there were at least two locomotives present in Port Arthur in 1884 indicates these were probably the Wusong railway engines because the French syndicate did not establish a firm presence there until late 1886-1887 when orders were placed for a large quantity of railway equipment and machinery⁵



Extract from the China Mail January 26 1885

J. Théveret⁶, a trained engineer and businessman based in Tianjin, was the leader of this project which had been awarded to a French syndicate in 1887 after earlier efforts by local contractors had failed to make substantial progress⁷. It is not clear whether the railway line laid down prior to 1884 was a 600mm Decauville system, 2ft.(609.6mm) or 2 ft. 6in. (762mm) gauges, but the ex-Wusong Railway locomotives (762mm) would have required complex modification to suit narrower gauges.⁸ For this reason it is probable that the early tracks laid during the formation of the ship basin and for construction of the forts would have been 762mm gauge mounted on wooden sleepers. The improvements included dredging the harbour approaches and the creation of a walled dock basin known as the East Port covering an area of 32 acres. This required dredging continually to maintain a depth of 25ft at low tide. Within this basin on its north face a stone-faced dry dock was constructed , capable of holding China's latest modern warships. Around the basin were numerous wharves and quays, fitted with steam cranes, and connected by railway with the workshops containing modern machinery. There was a smaller dock for torpedo boats, with a torpedo depot on shore.⁹

A number of early maps exist showing the development of the harbour facility. One of oldest is a map drawn on silk and presented by Li Hongzhang to the Empress Dowager, Cixi in 1890.¹⁰ At this stage there was a rail track along the northern perimeter quayside of the ship basin which deviated northwards around the dry dock and then ran southwards along the east side of the basin before turning west along the southern quayside, terminating near a floating land stage in the outer harbour.

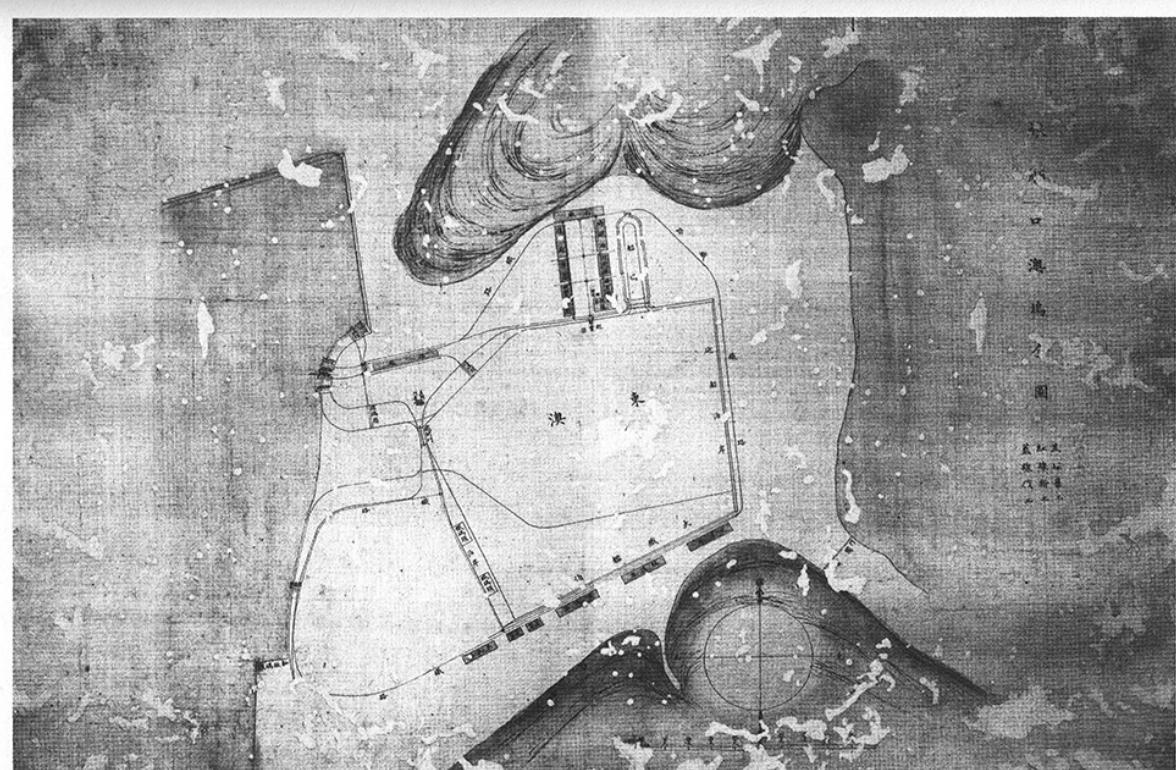
⁵ The Jardine Matheson Archive has records of orders for rail, locomotives , turntables and modern workshop machinery for the dock-side facilities during the period late 1886-1887, i.e. much later than the accident of 1884.

⁶ Théveret's residence and main office appears to have been in Tientsin (Tianjin) where he was a member of the French Municipal Council (Directory & Chronicle for China, Japan, Corea, Indo-China etc., etc. for 1888)

⁷ "Flowery Kingdom – China, Japan & Corea" by Henry Davenport Northrop., published 1894 ; Hong Kong Daily Press 26 Oct.1886 & China Mail 26 Sep.1887

⁸ Reducing the gauge of a locomotive is technically very difficult, frequently impossible because of the width of the locomotive frame, boiler and firebox. Converting to a wider gauge is much more readily accomplished

⁹ "Under the Dragon Flag - My experiences in the Chino-Japanese War" by James Allan, published New York 1898

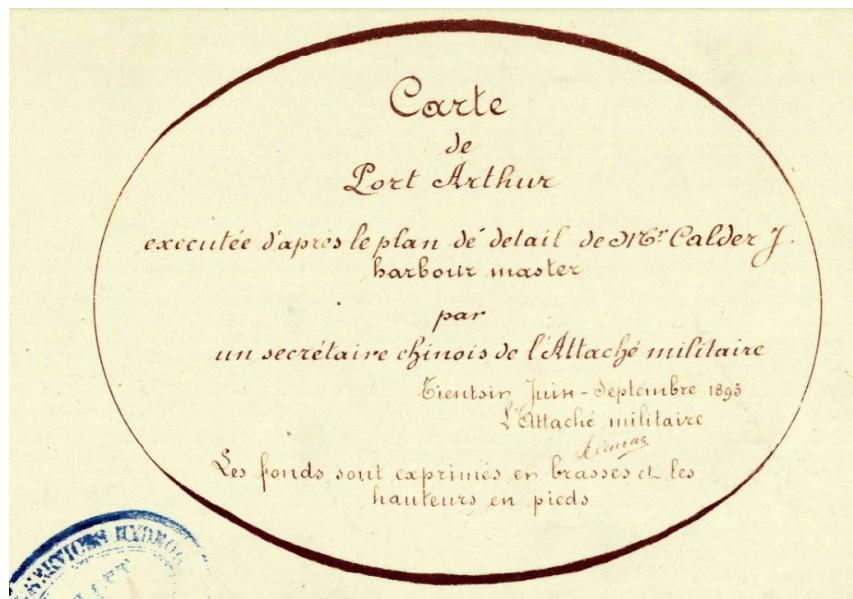


李鸿章呈报给慈禧太后的旅顺工程全景刺绣图（一）

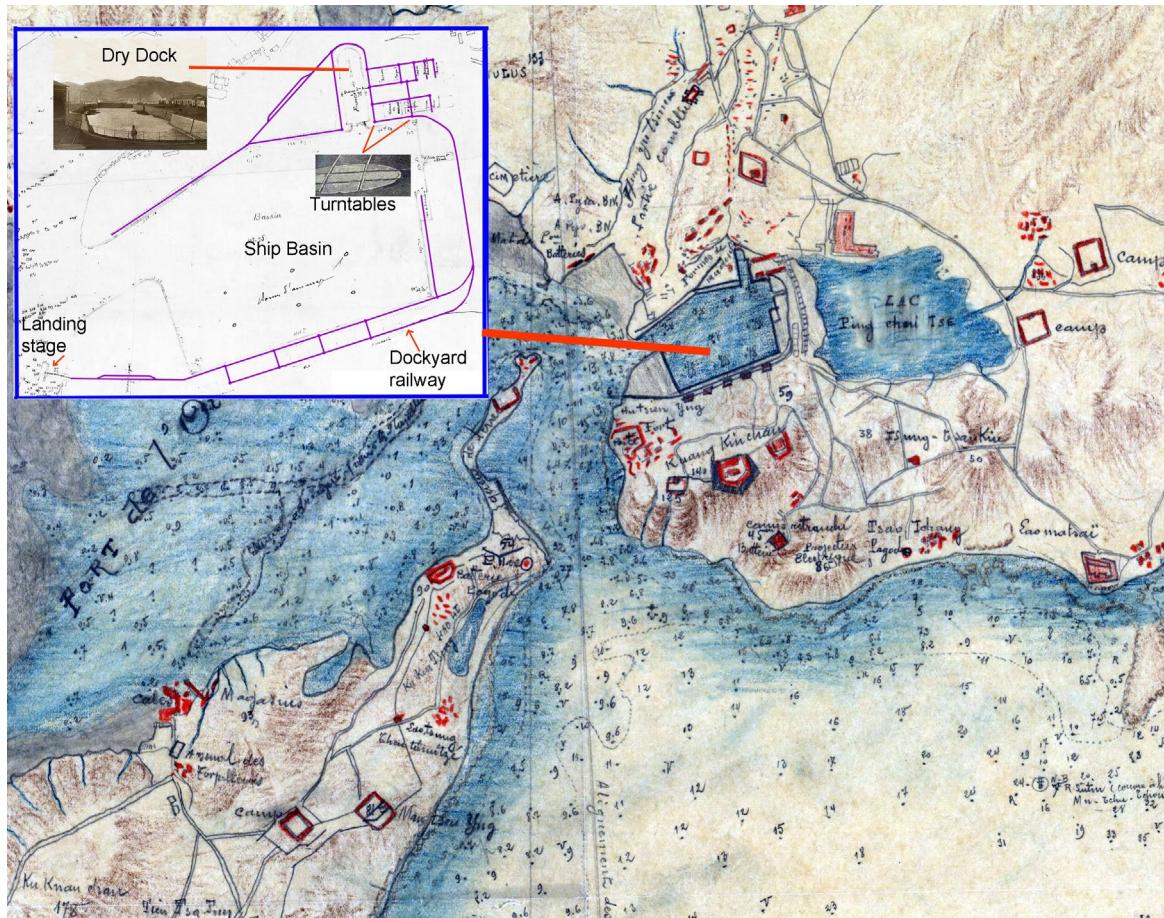
Map presented to Cixi in 1890



Extract from map of Port Arthur drawn in 1893 based upon an earlier map surveyed in 1889 by the Harbour Master at Port Arthur, Captain J. Calder..



This caption on the above 1893 map explains that the map was redrawn by staff of the French Military Attaché in Peking for onward transmission to the French Foreign Ministry in Paris¹⁰



Composite map and inset sketch showing the dockyard facilities built around the Basin. A network of rail / tramway lines provided direct access into the various workshops and facilities by use of turntables. The line also ran around the basin terminating at the S.E corner of the basin near a floating landing stage which was at the narrow harbour entrance opposite a narrow spit of land known as the "Tiger's Tail"

¹⁰ Source: gallica.bnf.fr / Bibliothèque nationale de France

The mythical “General” / “Commander-in-Chief” / “Major” / “Captain” Constantin von Hanneken (1854-1925)



I will first explain why we are deviating a little from the sole topic of military railways to explore the shenanigans of a junior German military adviser who had sold his services to China's self-strengthening movement of the 1870s- 1890s. In the early 1880's he was allotted the task of designing and overseeing the construction of a military fort overlooking the harbour in Lushun. It was during this work that reports appeared suggesting that von Hanneken had constructed a locomotive using disused parts of a steam dredger and had then successfully built a railway over one kilometre in length around the new Port Arthur naval facility and this was touted as "China's first railway in the North East" ¹¹

Between 2018 & 2020 a number of famous London auction houses held auctions for Chinese antiques and also a set of Chinese "Order of the Double Dragon" medals suggesting that they had belonged to the "famous" Constantin von Hanneken who had been appointed to very high rank in the Chinese government and military by Li Hongzhang. Claims were made by one auction house that von Hanneken had previously served in the Prussian Army as a Captain before going to China in 1879 where he "became a close friend" of Li Hong Zhang who appointed him to reorganize and modernize China's army. We are later told in this amazing work of fiction that von Hanneken during the

Sino-Japanese War rose to the rank of Chinese "General" and was appointed "Commander-in-Chief" of all of China's armies.¹² In many late 19th Century Western magazines and news papers much nonsense was created about this man. The gist all these reports was that von Hanneken had been elevated to very high position in the Chinese government, having performed great heroic feats during China's war with Japan in 1894. Within these reports he is sometimes labelled as "Captain", sometimes as "Major" and on other occasions even as "General" von Hanneken , *"famed for his "heroic leadership during the Franco-Prussia War of 1870"*. Not one of these writers bothered to point out that the von-Hanneken who was in China during the 1880s would have been only 16 years old at the time of that European war.

What is true in this story, is that in the 1880s dozens of Western foreign advisers of various nationalities were employed as military advisers for Li Hongzhang's modernization drive for the Chinese military and navy. Word had spread around Europe that there were rich pickings to be made and ex-soldiers and sailors of questionable ability and integrity made their way to China, frequently exaggerating their military records and even faking credentials in a quest for lucrative contracts from the Chinese. Von Hanneken was one such person but he had arrived in China in 1879 with an advantage; his father in Germany had been family friends of Gustav Dietring's family.¹³ Through Dietring, he was provided him with an introduction to Li Hongzhang's entourage and obtained a position advising on the construction of Fort "Lao Lou Tsou" (嶺崙嘴)¹⁴ in Port Arthur.

¹¹ "旅顺大坞史" (Lushun Great Dock History) by 门起满 (Men Qiman) , published Dalian 2017

¹² <https://www.sothbys.com/en/articles/detring-and-von-hanneken-the-highest-ranking-westerners-in-china> and <https://www.antiquestradegazette.com/print-edition/2020/february/2429/coins-medals/chinese-recognition-of-german-contribution/> (downloaded 15.Sep.2021

¹³ Gustav Dietring was Customs Commissioner at Tianjin where he worked under the patronage of Li Hongzhang. From 1878 to 1893 he was chairman of the board of directors of the British municipal council in Tianjin.

¹⁴ "Lao Lou Tsou" is the French phonetic romanization for *Laoluzui*. There are a number of variations for the Chinese name.

Von Hanneken did not hesitate in joining the other ratbag of fraudsters who hyped-up their qualifications and importance. He had never been the military “Captain” he claimed to be. After school he had attended the Prussian Army Cadet training programme but never rose beyond the rank of Second Lieutenant before being disciplined and dismissed from the army on account of a brawl. Thereafter, he attended some elementary training in engineering theory but this was for less than one year and he never completed a recognized college course.¹⁵

So having obtained his commission to design and supervise the building of a fort at Lushun he set about the project using technical detail supplied by his father through correspondence. During this time, he also turned to attempted arms trading and secured a contract for the supply of German-made Dreyse rifles (“needle guns”) for the Chinese Army but this deal collapsed after complaints were made about the poor quality of the weapons. By the end of 1883, what little advisory influence on Chinese military officials he did achieve diminished rapidly when younger and more experienced engineering military officers from Germany arrived, rendering his little expertise almost redundant. He lingered on in the remote and inhospitable Port Arthur on various fortification projects until 1886 but never achieved anything spectacular, his suggested designs for fortifications often being rejected. Even the younger German advisers did not remain long because they were soon replaced by the competing French.¹⁶

Von Hanneken’s name then faded into obscurity until the Sino-Japanese war erupted in 1894. He had returned to China and probably exploited Detring’s influence to secure a position as a military adviser accompanying a detachment of Chinese soldiers enroute to Korea to reinforce their own military at the request of the king. The Chinese troops were on chartered ship, the SS *Kowshing* which was under British registration and commanded by British merchant officers. However, a sea battle erupted on 25th July 1894 between the Japanese and Chinese navies in the Yellow Sea.¹⁷ The *Kowshing* carrying the soldiers was torpedoed by a Japanese warship sinking it. The ship’s boilers exploded and many of those on board including some British officers and von Hanneken were thrown overboard into the sea. Others jumped into the water as the ship sank. Many were injured from the explosions, however many of the Chinese soldiers in the water and in life boats were reportedly machine gunned by the Japanese.¹⁸

A major international diplomatic dispute erupted with both the Chinese and British sides claiming that Japan had acted illegally attacking a British commercial ship and before a state of war had been declared between Japan and China. War between these two nations was not formally declared until several days later. However, the Japanese went on the offensive creating lies about the events and, publishing propaganda in the Western press in favour of their “justified legal case under international law”. The Japanese even made claims that the machine-gunning of Chinese soldiers in the water and lifeboats had been perpetrated by their own Chinese officers because men were “deserting”.¹⁹

Britain faced a dilemma because compensation was being sought for the loss of a British ship and British lives. Two British Naval Court enquiries were held in which completely contradictory testimony was given by survivors and witnesses as to the exact events. Von

¹⁵ See “Western Advisers and late Qing Chinese Military Modernization ‘Case Study of Constantin von Hanneken’” by Ricardo K. S. Mak , Journal of Northeast Asian History , Vol 10 No.2, 2013.

¹⁶ Ibid and *The China Mail* 26 September 1887, reporting the dismissal of German advisers and replacement by the French.

¹⁷ “Sinking of the SS *Kowshing* - International Law, Diplomacy and Sino-Japanese War” Abstract by D. Howland Modern Asian Studies Vol. 42 No. 4. 2008.; *New York Times* 31 July 1894 & 7 Aug 1894

¹⁸ Ibid

¹⁹ Ibid

Hanneken, who appeared as a court witness, was listed as a Chinese military adviser, under name of **Lieutenant** von Hanneken, not “General” “Colonel”, “Major” or even “Captain” von Hannaken as would later be reported in the various foreign language overseas newspapers.²⁰

However, the British government wished to preserve friendly relations with Japan having recently agreed to sign a new treaty with Japan concerning some disputes about historic “unequal treaty” provisions. So Japan won the day in the diplomatic spat over the *Kowshing* sinking affair, in spite of the outrage from one British Admiral who demanded that the Japanese captain who had fired on the ship be arrested and charged with murder. The British and Japanese next jointly demanded that the Chinese government should be responsible and pay compensation for the loss of this ship. It was appalling incident because of the estimated 1,176 persons aboard, only two officers, two quartermasters, von Hanneken and less than 200 Chinese soldiers survived. The dispute over financial liability continued to drag on for several years between Britain and China but following the Boxer uprising of 1900 and the invasion of China by the Eight-Powers, China lost their case and was coerced into paying compensation, the duplicitous British holding China responsible for what had clearly been Japanese initiated aggression.²¹

Returning to the “hero” von Hanneken ; only one month following the sinking of the *Kowshing* the Sino-Japanese war was raging and on 17th September 1894, the Battle of the



Ding Ruchang 丁汝昌

Yalu River²² took place during which the Peiyang fleet was severely crippled by the Japanese Navy. Von Hanneken just happened to be aboard the flag ship of the Chinese Navy with a handful of other displaced land-based foreign advisers. The flagship was the “Ting Yuen” (定远 *Dingyuan*) under Chinese Admiral of the Fleet, Ting Ju-chang (丁汝昌 *Ding Ruchang*), assisted by Flag Captain and Commodore Lew Poo-chin (刘步蟾 *Liu Buchan*) who had been trained in England by the British Navy. There were also British and/or German engineers and naval advisers on most of the fleet’s ships²³ but von Hanneken’s name does not appear in the records.

During the battle, the *Dingyuan* was shelled heavily during a number of engagements and Admiral Ding was wounded, whereupon Fleet Captain Liu assumed command from the Admiral. Later during the several hours-long battle many of China’s cruisers had been sunk or destroyed and the *Dingyuan* was also so badly damaged that Captain Liu ordered it to be scuttled. Liu later committed suicide that day by taking opium. He was, however, declared a national hero by the Chinese government and posthumously promoted to Admiral. All of this is well documented in both Chinese and Western archives but this is not the version of events which van Hanneken connived to have published in the overseas newspapers and magazines.²⁴

²⁰ Ibid, *New York Times*, *The China Daily* & various magazines of the late 1890s with respect to the rank of von Hanneken. For example in Henry D. Northrop’s “The Flowery Kingdom -China, Japan and Corea, published in 1894 , the author writes that **General** von Hanneken was aboard the *Kow Shing* when it was sunk. .

²¹ “Sinking of the SS Kowshing - International Law, Diplomacy and Sino-Japanese War” Abstract by D. Howland Modern Asian Studies Vol. 42 No. 4. 2008

²² 黄海海战

²³ The Chronicle & Directory for China for the year 1894 lists the Peiyang Fleet and the Chinese and foreign officers on board each ship.

²⁴ The wounded Admiral Ding, who had left the fleet to go to the naval base on Liugong island at Wei Hai Wei later also committed suicide.

In the Western newspaper accounts of this battle, "Captain" van Hanneken "although wounded" bravely assumed command and directed the entire Chinese fleet after Admiral's Ding's incapacitation due to his injuries.²⁵

And so after this long detour about van Hannaken, we suggest this man was virtually a fraud and conman who had hyped up his self-importance and exaggerated his official position by exploiting his family connections with Dietring. The claims that he had "built China's first railway in the north-east" and constructed a "locomotive" from machinery cannibalized from an old sea dredger are also without good foundation. There is certainly no evidence in official records . The construction of a fort on a steep hillside would indeed have required some method of moving soil, rock and other construction materials between the different levels. We suggest that the most van Hannaken might have devised was a temporary funicular track upon which wagons could be hoisted up and down by steel cables. The power plant for this device could easily be created by some simple modification to the steam plant of a grab dredge mounted on a crane barge. This type of dredger also uses cables wound on a large drum for moving the crane arms and the grab bucket.

The Occupation of Port Arthur and the Liaodong Peninsula following the Sino-Japanese War, 1895-1906

During this decade of turmoil, the military occupiers of Port Arthur and the Liaodong Peninsular changed hands four times. Summarizing these events :-

(I) Following the defeat of China's Beiyang Naval fleet, the Japanese army landed and swarmed through the northern parts of Korea and then down through the Liaodong Peninsula taking Port Arthur with little resistance. Many of the defending Chinese troops took to boats to escape but those who stood their ground were savagely slaughtered by the Japanese. Little serious shell damage, however was inflicted on the Port Arthur and the dock facilities including railway network remained largely unscathed. The Japanese were able to make use of the existing facilities for housing their troops without too much repair work.



An edition of the French magazine *Le Monde Illustré* published a photograph of Japanese troops on the quayside following their capture of Port Arthur by the Japanese Army in 1894. The army had been supported from offshore by Japanese Navy ships shelling the hillside fortifications. A narrow-gauge railway or tramway track may be observed running along the quayside at the bottom of the photo. This is probably a section of the railway commissioned

by Li Hongzhang as part of the harbour improvements project preceding the Sino-Japanese War.

²⁵ In "Western Advisers and late Qing Chinese Military Modernization 'Case Study of Constantin von Hanneken " the author suggests that accounts of van Hannaken's achievements and heroism were written by himself or a close friend. In "Under the Dragon Flag - My Experiences in the Chino-Japanese War" by James. Allan, published in 1898, the author writes that he had a chat with a British engineer (A. Purvis) assigned to the Chinese cruiser " Chih Yuen". Purvis is alleged to have told him that Admiral Ding was under the influence of a Captain or Major van Hennecken (the named was misspelled).The author continues that he does not know if this is true or fact but it would be astonishing if the large modern Chinese naval fleet, which suffered disaster in the battle would have had been placed under the direction of a soldier.

(II) The Japanese occupation of Port Arthur and Liaodong Peninsula in 1895 was however, very short-lived. Almost immediately after China's defeat, Japan was subjected to intense international diplomatic pressure from an alliance of Russia, Germany and France and were coerced into handing it over to Russian control in May 1895 under a convention ²⁶. This "denial of Empire" and "the right of the victor to keep the spoils of war" left Japan extremely aggrieved and they were soon plotting their revenge. By mid-year the Japanese troops had departed the peninsula and handed over control to the Russians who immediately began repairing the upgrading the surrounding fortifications and together with the construction of a new large naval barracks building. Some of the little-damaged former Chinese naval buildings were also repaired and modified for the own use as training facilities and other depots.

We suggest that the Russians would have continued to use this narrow-gauge dockside facility line because it had been well-constructed under French supervision and appeared to be little damaged by the war. While the Russians were constructing their new headquarters block at Port Arthur, a temporary-laid line for the transfer using tip-wagons for spoil and building materials.



Newly constructed Russian Naval Crew Barracks at Port Arthur with the temporary railway laid for this project .Over-turned tip wagons may be seen lying next to the tracks ²⁷

²⁶ The formal settlement of the war between Japan and China following the latter's defeat was signed on 17 April 1895 as the Treaty of Shimonoseki. However, less than month later Japan was coerced into agreeing to a convention known as the Tripartite Intervention (三国干涉) handing control to Russia which was signed by the Japanese Prime Minister on 5th May 1895. All Japanese troops had departed the Liaodong Peninsula by the year end.

²⁷ Picture (070@K 20=BC=A; >3> D; >BA; >3> M8?060) from the Russian private collection of Agnessa Diness in the 'Kunskamera' museum, downloaded from <http://collection.kunstkamera.ru/> My thanks to Sergei Dorozhkov for this information



The Port Arthur harbour Basin during the Russian occupation²⁸



The dry dock situated on the north face of the Port Arthur Basin during Russian occupation.
The original French-installed tracks and turntables appear intact.

There is little evidence that the Russians, following their occupation of the port, laid any substantial additional permanent narrow-gauge lines or tramways to the forts or other facilities. Their railway construction engineers and crews were already fully occupied completing the main 5ft (1524 mm) gauge Southern branch line of the CE Railway ("CER"), which reached Port Arthur in September 1898.

²⁸ Agnessa Diness photo collection in the 'Kunskamera' museum



The deep cutting and steep ascent of the Chinese Eastern Railway track rising out of Port Arthur³⁰

(III) We now move forward to 1904 when the Japanese government stunned the Western powers and struck back at the Russians. Hitherto, Western arrogance had always supposed that Asiatic races were incapable of even matching let alone exceeding Western military professionalism and capabilities. Japan initially offered to recognize the Russian presence in Manchuria²⁹ but they demanded in return that Russia should accept that the whole of Korea was to be under Japanese domination. Russia declined but countered with an offer of a neutral buffer zone between Russia and Japan in Korea north of the 39th. parallel. The Japanese government rejected this and on the night of 8th February 1904 launched a surprise attack against the Russian Eastern fleet in Port Arthur. This led to the protracted "Siege of Port Arthur: which lasted until 2nd January 1905 following with Russian surrender.

The Japanese military landed its armies at several locations along the Manchurian coast. In May 1904 the Japanese 2nd Army landed at Pitzuwo (貔子窩 *Piziwo*)³¹ and fought their way inland to the CER line near Pulantien (普兰店 *Pulandian*), where they divided to advance along the railway route both to the north and south. By 30th May they had captured and occupied Dalian and also continued southwards towards Port Arthur.



The remains of the C.E.R line at Dalny (大连 *Dalian*) dismantled by the retreating Russians.
Most of the extensive trackwork can be seen missing and only a couple of lines of the Russian broad-gauge freight wagons left behind³²

²⁹ "Manchuria" was the Western name for China's north-eastern provinces

³⁰ Photographs of Jules Legros -Voyage sur le transmanschourien 1901-1902 (http://patrimoine.bm-dijon.fr/pleade/img-viewer/EST01103_01/viewer.html?ns=FR212316101_EST01103_01_067.jpg). Downloaded 20.08.2021.

³¹ Piziwo (貔子窩) is now named Pikouzhen (皮口镇)

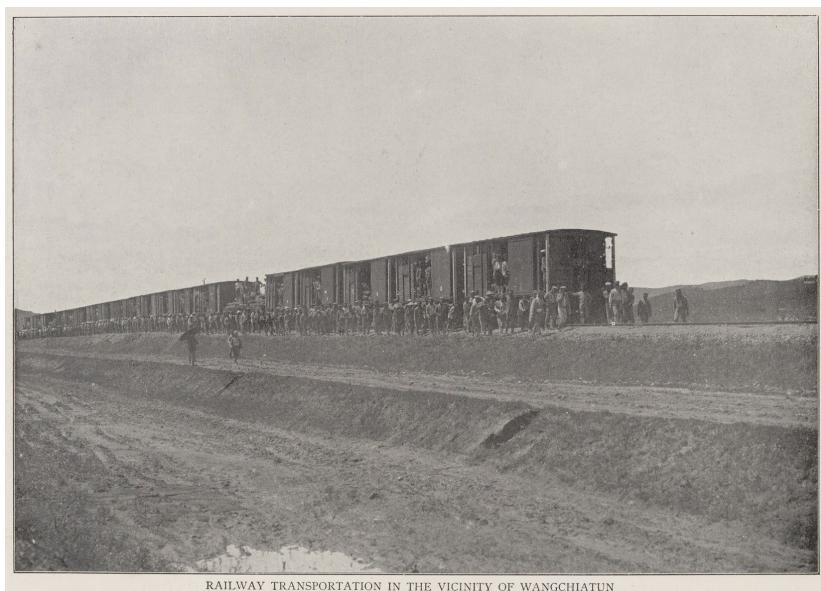
³² P. A. Crush Chinese Railway Collection. Album 1. Photo P20/1. Most of the extensive trackwork can be seen missing and only a couple of lines of the Russian broad-gauge freight wagons left behind.

Although the CER tracks had been hurriedly ripped up and the bulk of the rolling stock withdrawn, or disabled by the retreating Russians, the Japanese initially made use of abandoned Russian CER broad-gauge wagons and relayed the rails track but had to make do without any locomotives. Using a system of push-trains with each wagon being moved by about 18 "coolies" or train soldiers, these trains were formed into strings of 20 to 30 cars and could cover 15 miles daily.³³



TRANSPORTATION OF STORES ON CAPTURED VANS.

Push train with separate wagons, each pulled along using hemp ropes by about 30 Japanese soldiers³⁴



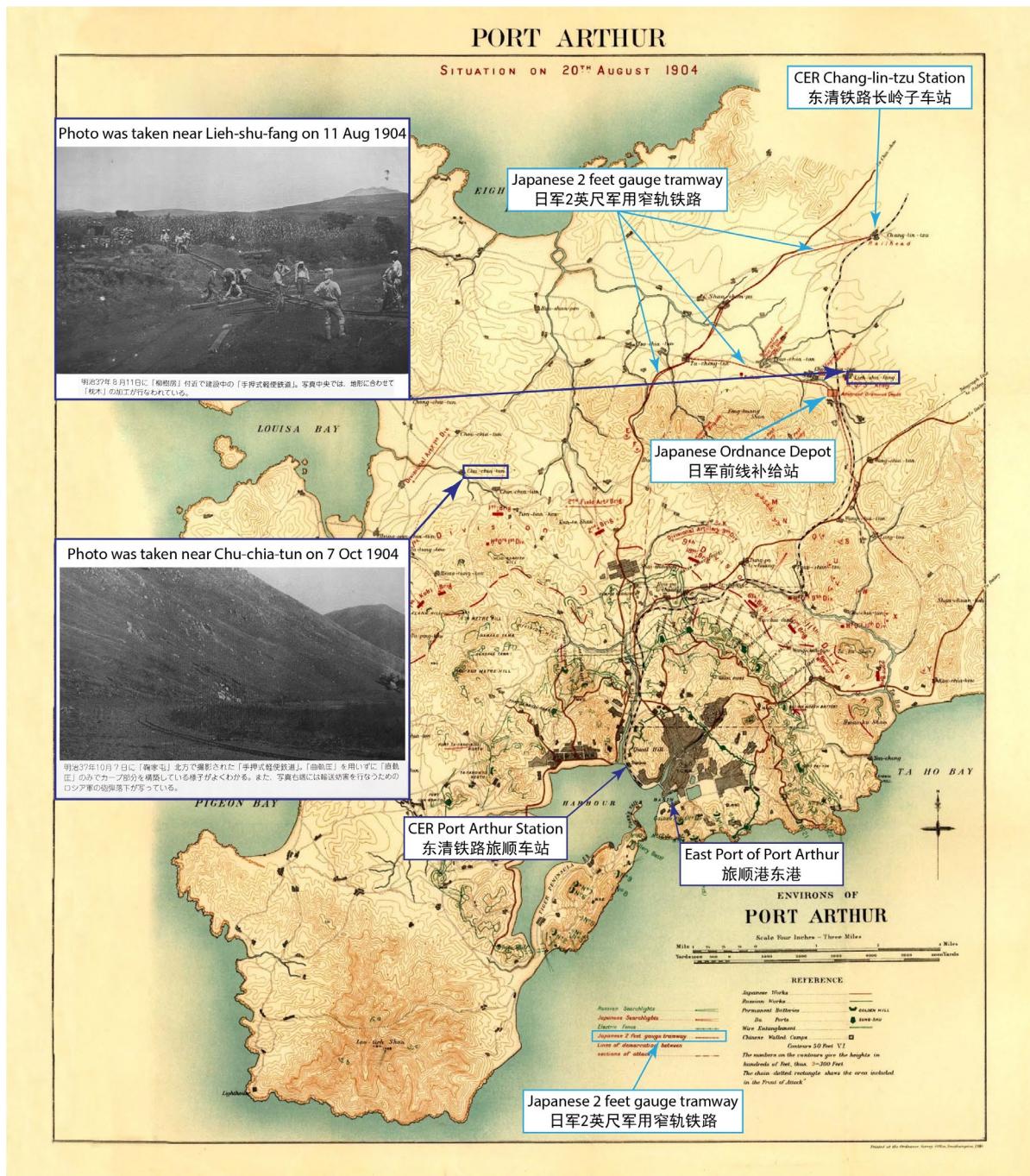
RAILWAY TRANSPORTATION IN THE VICINITY OF WANGCHIATUN

Push train with coupled wagons, pulled along hundreds of locally-employed coolies

This method, however was progressively replaced with conversion of the track width to Japanese 3ft. 6in gauge (1067 mm) as quickly as locomotives and rolling stock requisitioned from Japanese railways could be shipped in.

³³ U.S War Department "Reports of military observers attached to the armies in Manchuria during the Russo-Japanese war. (September 1. 1906.)

³⁴ Both photographs from a printed album "Russo Japanese War" published by K. Ogawa, Tokyo 1905.



Annotated extract from Map of Port Arthur as on 20th August 1904 ³⁵.

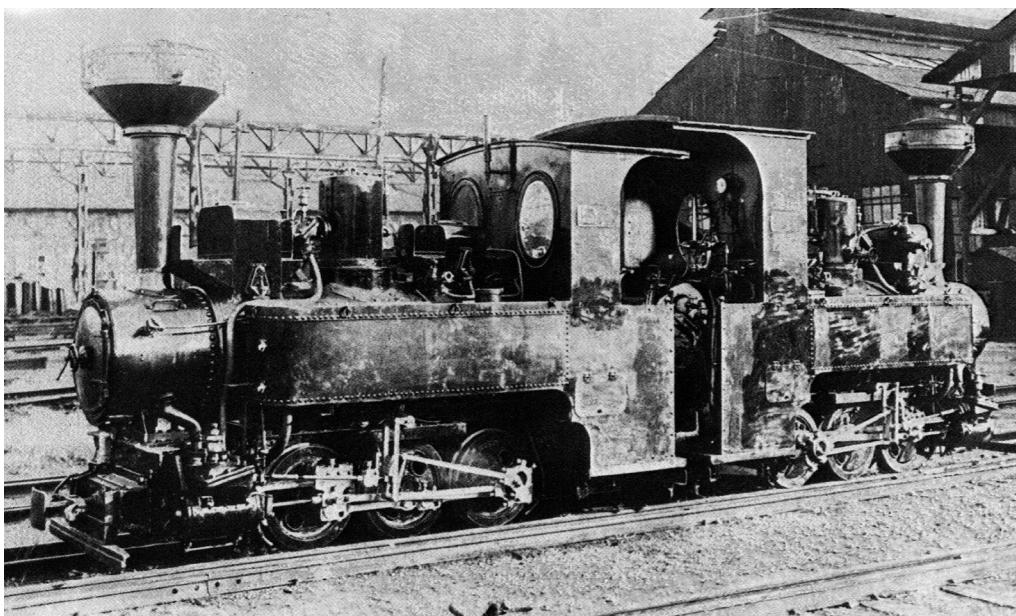
The Russian defences are indicated in green and the attacking Japanese Army's positions in red

³⁵ Map printed by the British Ordnance Survey Office.



By August 1904, the Japanese Army had moved down the tip of the Liaodong Peninsula occupying the higher ground, having pushed back the Russian defenders into heavily-fortified Port Arthur. A rail head on the CER was secured at Changlin (长琳) which then became the major munitions and provisions depot for the ensuing siege.³⁶ From this depot ammunition and siege provisions were carried on field tramways described in several Western military reports as "2ft gauge" but more likely be to 600mm Deacauville system.³⁷ These tramways overlooking Port Arthur made use of hand pushed trolleys as did a similar field line laid earlier from the Yalu river (鸭绿江) landing point to Fenghuangcheng (凤凰城)³⁸

However, by September 1905, a 600mm steam-operated field line had been laid between Mukden (Shenyang) and Hsinmintung (新民听 Xinminting)³⁹ which for a short period made use of a number of Zwilling-type 0-6-0t locomotives operated in pairs back to back.⁴⁰



A pair of unidentified Borsig "Zwilling" type 0-6-0t locomotives used in the Russo-Japanese War.⁴¹

³⁶ Ibid

³⁷ The Japanese military had already purchased in 1905 a substantial amount of 600mm military 'Feldbahn' railway equipment including almost 200 Zwilling-type locomotives

³⁸ U.S War Department "Reports of military observers attached to the armies in Manchuria during the Russo-Japanese war. (September 1. 1906.)

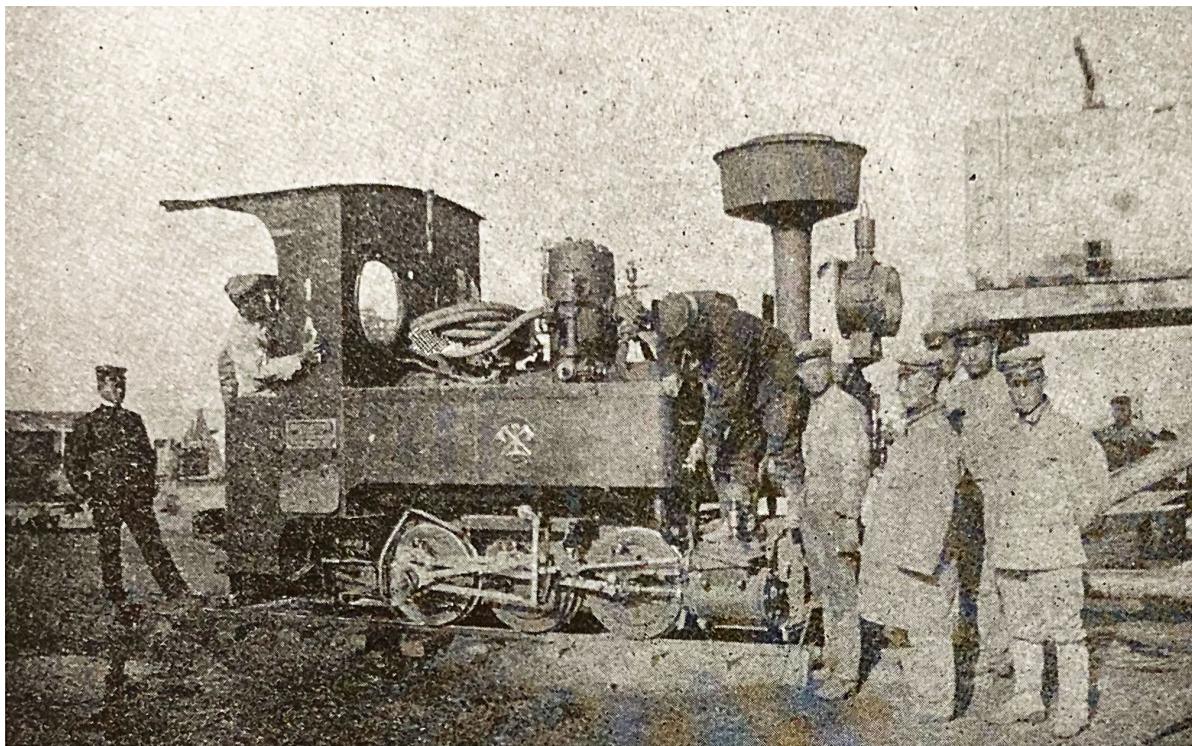
³⁹ Ibid

⁴⁰ Ibid. In this report , Major J. W. Kuhn of the U.S. Corps of Engineers writes that he had been told by Japanese General Kodama that steam locomotives were being used but when he saw the tracks in September 1905, he never saw any evidence of locomotives or cars. Japanese locomotive lists suggest that nearly 200 Zwilling-type 600mm engines were ordered from various German manufacturers in 1901 & 1905, although railway historian Mitsuhiro Katsuragawa in "Steam Locomotive List in Old China " (2011) states that only three pairs of Zwillings were taken to the Manchurian operation.

⁴¹ Katsuragawa lists only three pairs used on the Xinmintang field line : A87-B7 & A89-B89 built by Schwartzkopff in 1905 & A140-B140 by Borsig, also of 1905. The latter pair (Borsig) is therefore, the most likely pair in the above photograph.



The first pair of Krauss "Zwilling" 0-6-0t feldbahn locomotives (Works No. 4500 of 1901) bought by the Japanese War Department. Numbered as 1A & 1B, they bore a builder's plates stating they were imported by SASDA & Co, of Tokyo.⁴²



Another photo of Krauss 1A deployed in Manchuria but operating as a single unit because of a shortage of locomotives⁴³

Following the Russian surrender at Port Arthur in January 1905, the Japanese Army continued their land war further north, defeating the Russians at Mukden (Shenyang) in March 1895. Then followed the second major sea battle of the war when the Russian Baltic Fleet, which had sailed all the way from Europe, was ambushed in the Battle of Tsushima causing the virtual destruction of the entire Russian fleet. Russia sued for a peace settlement which was negotiated by U.S. President Theodore Roosevelt.⁴⁴ The Liaodong

⁴² Photo from 臨時鐵道大隊紀念寫真帖 (Hiroyuki Takagi: Photo Album of the Japanese Army Railway Company, Tokyo: Chaoshufang Guangrensha, 2015, ISBN 978-4-7698-1600-3.)

⁴³ Ibid. This album suggests this locomotive was deployed on the Xinmintung-Shenyang line or the Fenghuangcheng to Antung temporary line but this does not accord with Katsuragawa's information.

⁴⁴ The Treaty of Portsmouth (New Hampshire, U.S.A.) was signed on 5th September 1895..

Peninsula and Manchuria remained under Japan's occupation and control for the next forty years as the "leased" South Manchuria Railway Zone and later as the puppet state of Manchukuo⁴⁵ until Japan's defeat in World War 2. For a decade Russia's Soviet Union occupied Lushun, making use of its naval base once again until handing it over to the People Republic of China in 1955.

During the Russo-Japanese War, the Japanese military also constructed a purpose built 2ft. 6in (762mm) gauge railway from Antung (安东 Andong) to Mukden (Shenyang), purchasing 82 tank locomotives from the Baldwin Locomotives Works built in 1904 -1905. This topic will be covered separately in a future article in this series.

(b) Military field railways used during the suppression of the 'Boxer Uprising'⁴⁶ and subsequent Eight-Nation Alliance military occupation of North China 1900-1902

The "Boxer Uprising" and the Siege of the Foreign Legations in Peking (Beijing) provoked an alliance of eight nations to invade China, landing by sea, in June 1900. The numbers of foreign troops participating in the invasion and subsequent occupation of North China eventually exceeded 50,000 men when including their navies, marines and armies. Only Germany and Britain are known to have taken field railway equipment and in the latter's case this was only a few kilometres of tramway track and a few wagons but no locomotives. The British railway equipment was loaned to German troops for use "near Shanhaiguan"⁴⁷

Only Germany had a dedicated field railway contingent which initially numbered 11 officers, 27 NCOs and 245 volunteers but this increased later. Reports indicate that about 90 km of Decauville type 600mm track was brought with 10 locomotives (operating in 5 pairs) and some 50 wagons.⁴⁸ The other nations, however, did send experienced army engineers some of who were well familiar with railway maintenance. These units carried out repairs to the badly destroyed tracks and rolling stock of China's main railway lines around the Beijing district which consisted of only the incomplete Peking to Mukden (Shenyang) and Peking to Hankow lines.⁴⁹

The invading foreign forces had landed at the small riverine port of Tangku (塘沽 Tanggu) by shallow-draught vessels. From here they were carried by train by the main line railway to the foreign settlements at Tientsin (Tianjin) , where large military bases and stores were hastily established.

The first feldbahn (field line), completed in October 1900 by the German railway contingent, made use of horses to pull wagons along a short 4 or 5 km track from the Tientsin (Tianjin) railway station to an ammunition and other supplies depots near the river. This short section required a 20m long temporary bridge. After 250 tons of additional feldbahn railway

⁴⁵ 满洲国

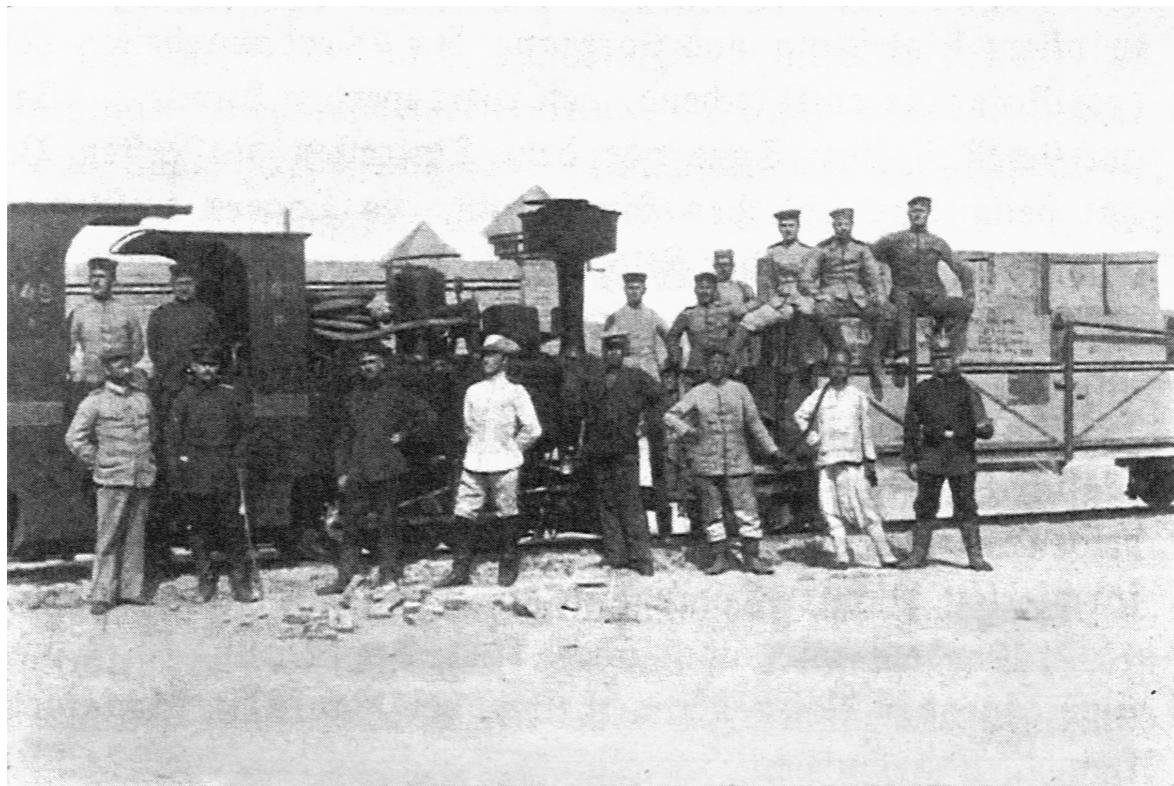
⁴⁶ The Boxer Uprising (义和团运动) is frequent referred to as the Boxer Rebellion

⁴⁷ Royal Engineers Journal Jan 1905 "Engineering Work In Northern China" by Col. G.K. Scott-Moncrieff.

⁴⁸ Heresfeldbahnen – by A. B. Gottwaldt & others : "Kriegseinsatz in China"

⁴⁹ The Peking-Mukden Railway ("Kin-Feng" or "Imperial Railways of North China") line at the start of hostilities in 1900 had only reached Jinzhou (锦州) to the north with construction of railway bridges still in progress beyond this. The Peking-Hankow ("Peihan") line had only reached Baoding (保定) in the south. The Peking terminus had been a fine new station building completed in late 1897 outside the city walls at Majiapu (马家堡) from where it was connected by an electric tram service to the city gate at Yongdinmen (永定门), completed in May 1899. The station and tramway were both completely destroyed by the Boxers on 28 May 1900 along with the main locomotive shed and its contents at Fengtai.(丰台). It was at this latter scene of destruction that British Royal Engineer sergeant A. Tinkham constructed the improvised "Grasshopper" locomotive out of the remnants of locomotives which had been blown up with dynamite by the Boxers. (see "Mystery of an Early Chinese Engine"). <https://www.researchgate.net/publication/350451423 THE MYSTERY OF AN EARLY CHINESE ENGINE>

equipment had arrived in April 1901, a pair of Zwilling-type 0-6-0 tank locomotives (No 149A -149B) replaced the horse drawn trains on the short Tianjin depot line.⁵⁰



Feldbahnanbindung Kohlendorf—Peihö—Proviantamt in Tientsin

Henschel & Sohn "Zwilling"- type pair of 0-6-0t locomotives, Nos.149A &149B
(Works Nos, 5364 & 5365 of 1900) seen with members of the German railway
contingent and stores staff on the 600mm gauge depot track at Tianjin in 1901⁵¹

When the locomotives and additional wagons arrived in April 1901, the rolling stock had all been dismantled before it was shipped from Bremerhaven. The frames, boilers, wheels, axels, bearings and linkage etc. were crated separately for ease of trans-shipment and for carriage over non-metalled roads. Regrettably, because of so many transshipments between freighters and then into lighters and smaller shallow-draft vessels, the crates had become mixed up and some even damaged. When the shipping crates the mechanics found parts missing and they had to cannibalize these from other engines. For this reason, the engines sometimes had to operate as separate units until the missing or damaged components could be retrieved or repaired.⁵²

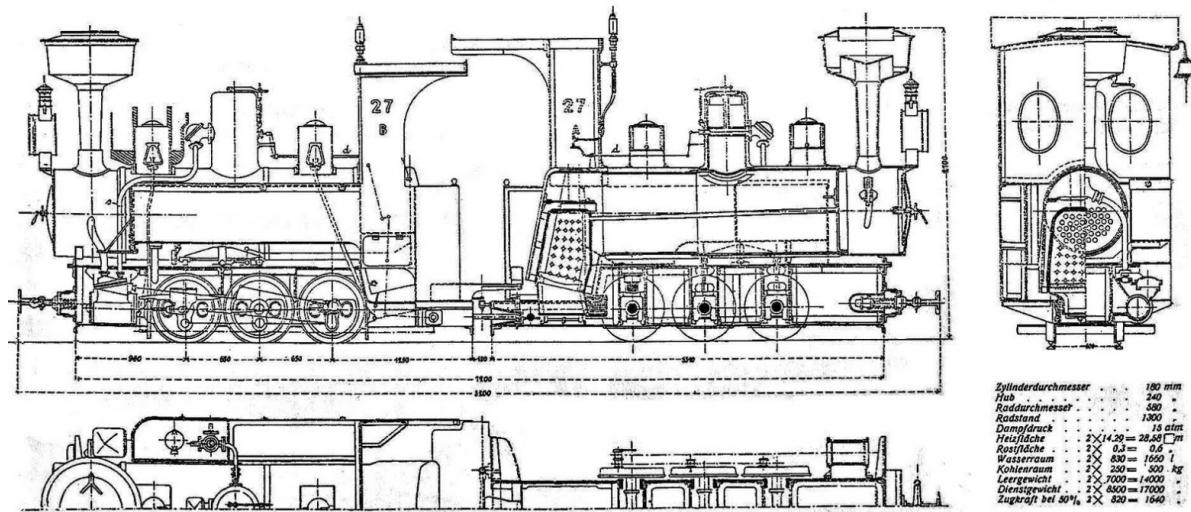
⁵⁰ (1) Heresfeldbahnen – by A. B. Gottwaldt & others ; (2) "Kriegseinsatz in China" & (3) "Deutschland in China 1900-1901" published by Druck von August , Berlin 1902. (Multiple contributors)

⁵¹ Photo from "Deutschland in China 1900-1901" published by Druck von August , Berlin 1902

⁵² Ibid.

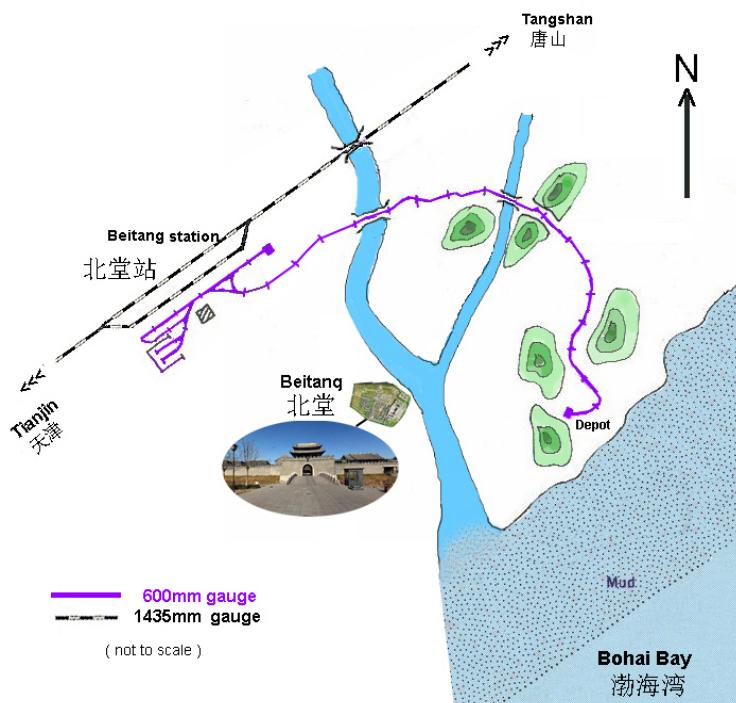
FELDBAHN STANDARD 0-6-0+0-6-0 DOUBLE LOCOMOTIVE

Between 1890 - WW I, the German Army had 182 of these "Zwilling"s built. Each pair consisted of two 60 horse-power units known as "Illing"s. The design catered for the eventuality of one loco failing, then the other engine could still get home safely.



Engineering sketch of Zwilling-type paired locomotives⁵³

The German troops had also come well-organized and equipped with field equipment for constructing high quality camps for their troops, unlike the other nations participating in the expedition who had improvise, often commandeering accommodation from local people. After the initial suppression of the Boxer hostilities, large military camps were established outside the cities at greener, healthier and often cooler places with sea breezes along the Gulf of the Liaodong Peninsular. These were connected to the main line railway, now firmly under the control of foreign military hands and operating smoothly and efficiently after to repairs to the tracks around Peking. The German Army erected three large military camps, with 600mm gauge narrow gauge lines connecting these with the main railway line :-



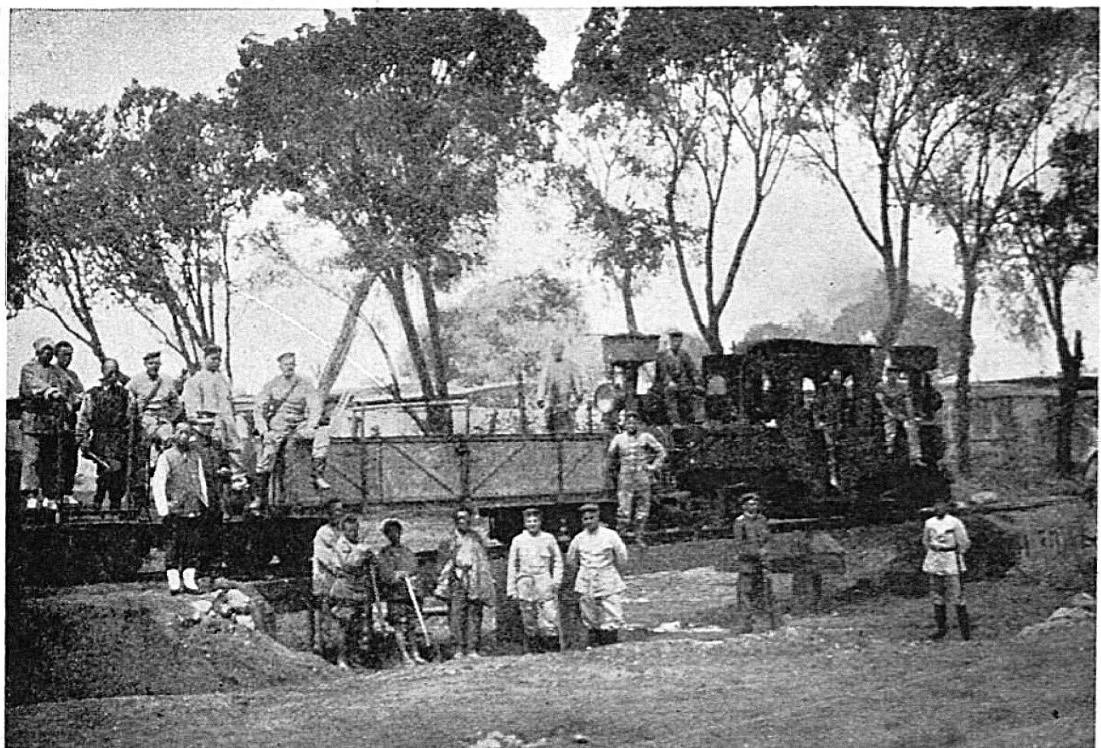
The first camp was on the coast about 7 km south of Peitang (北塘 Beitan) station on the main railway line from Tianjin to Shanhaiguan. Construction of the connecting narrow gauge line was started in April 1901 and completed shortly later⁵⁴

A second line connecting with

⁵³ Sketch from Heresfeldbahnen – by A. B. Gottwaldt & others

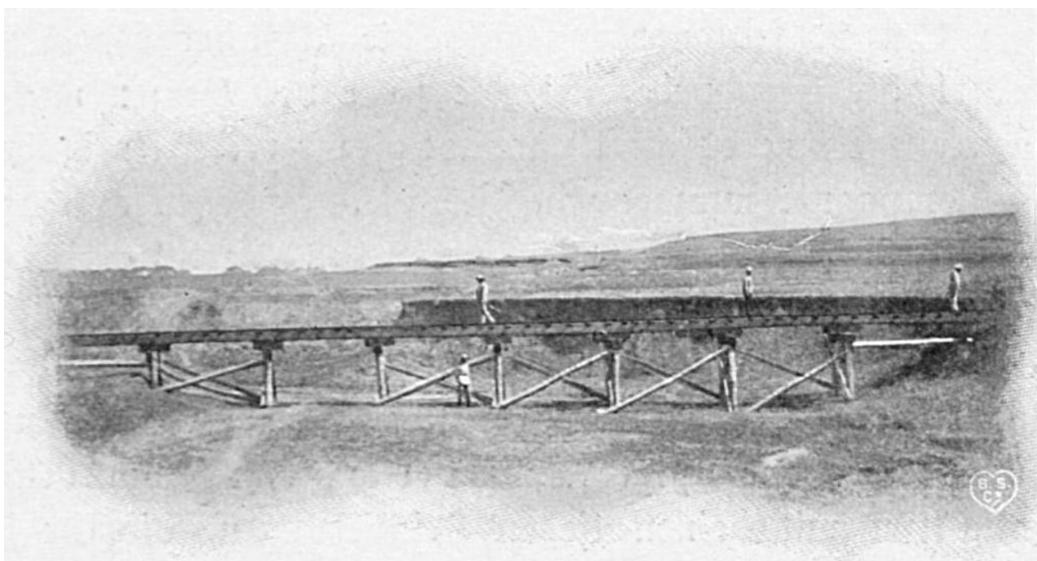
⁵⁴ Map by P.A. Crush

the main railway, 5km in length, was erected at Kaiping (开平) near Tangshan colliery, opening in October 1901.⁵⁵



Feldbahn-Brücke mit Belastung bei Kaiping

A construction team working on the Kaiping track. Note that the soldiers are generally looking on while paid Chinese labourers are holding the earth moving tools and doing most of the hard work

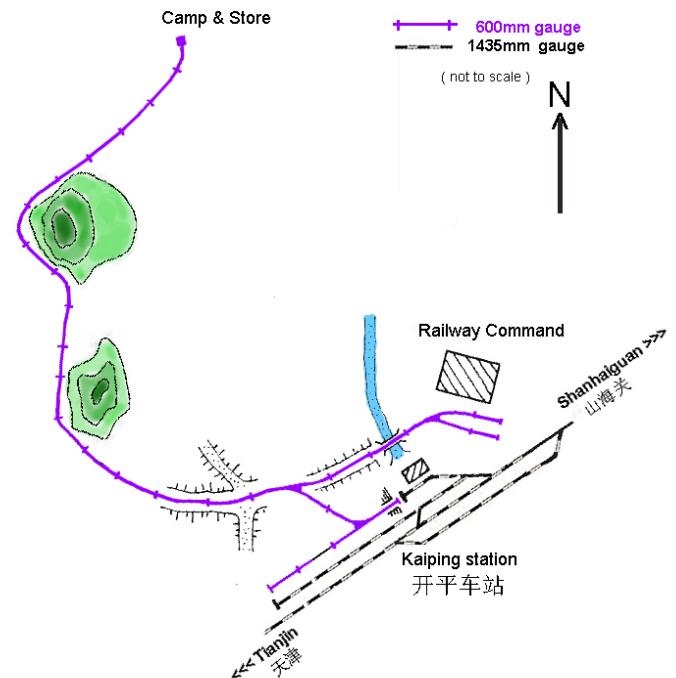


36 Meter-Brücke, Feldbahn Kaiping—Deutsches Lager

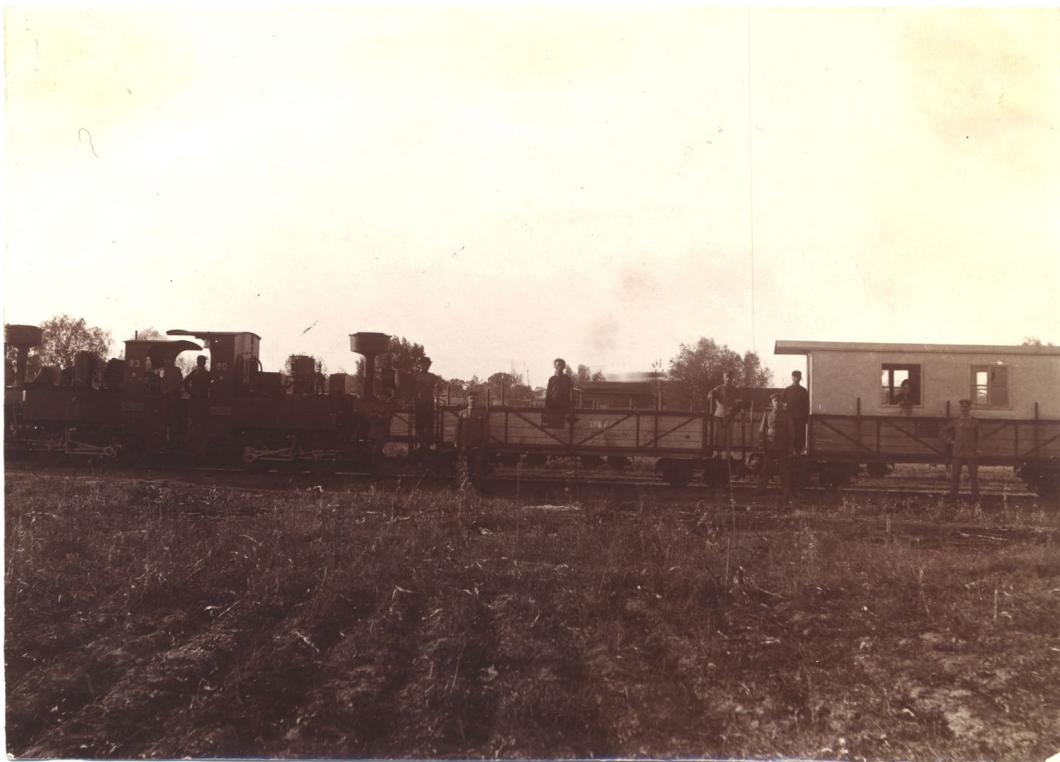
36 meter bridge on the Kaiping field railway⁵⁶

⁵⁵ Heresfeldbahnen – by A. B. Gottwaldt & others.

⁵⁶ Two photos above from *Deutschland in China 1900-1901*



Sketch -map of 5 km-long feldbahn to the German troop camp at Kaiping⁵⁷

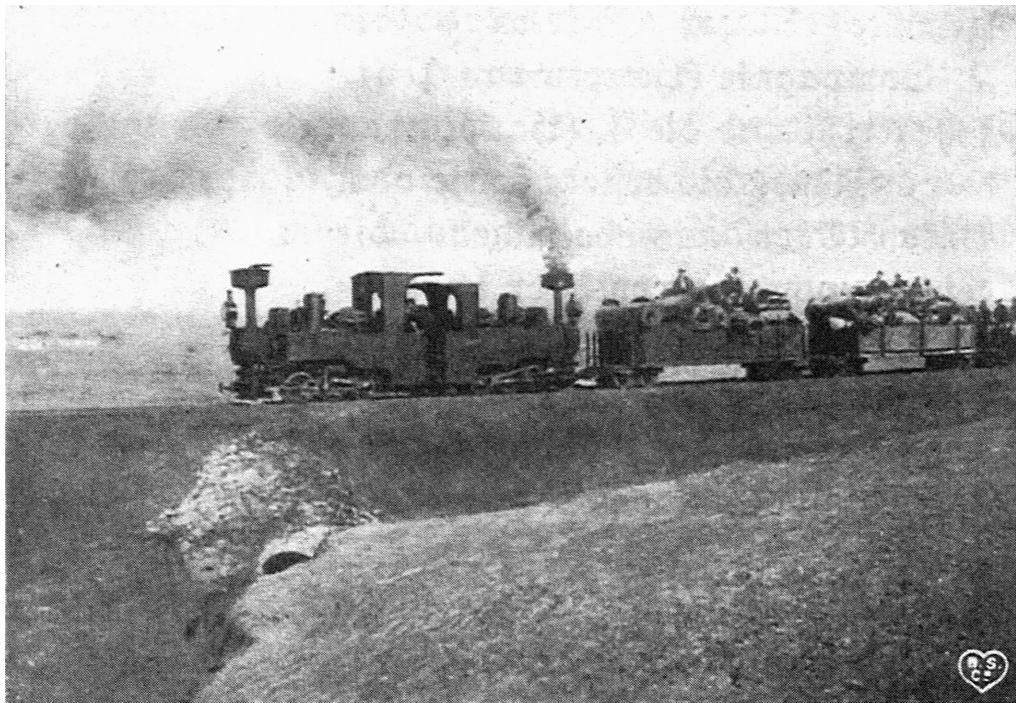


A pair of Henschel "Zwilling" feldbahn locomotives , 80A with 83B
(Works nos. 3947 & 3954 respectively, both built in 1894) ⁵⁸

⁵⁷ Map by P.A. Crush

⁵⁸ Author's collection

The third camp and connecting 15km narrow-gauge line would have been the most comfortable location for troops during the hot summer months at Peitaiho (北戴河 *Beidaihe*) . This camp, built in May 1901 was on the hillside overlooking the sea which had been a rapidly growing seaside summer resort for the north China's European residents.⁵⁹



Feldbahn Pei tha ho—Deutsches Lager

The feldbahn track on a purpose-built embankment near Beidaihe. The construction was substantial and well-built with an arched brick drainage culvert visible in the foreground.

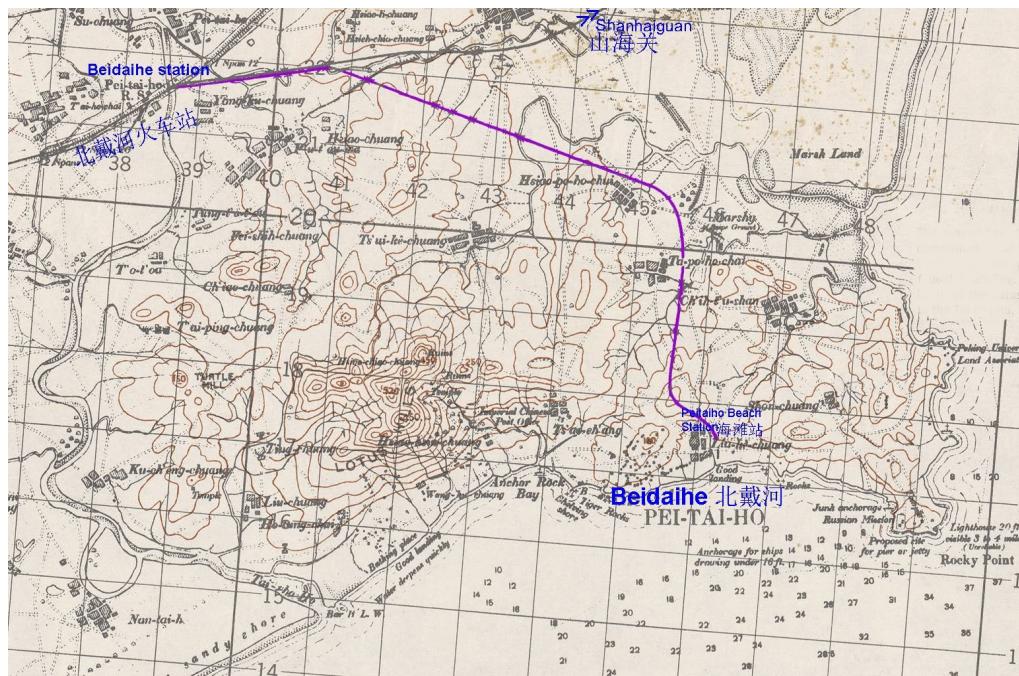


Anfangsbahnhof Pei tha ho

The feldbahn railway yard at Beidaihe near the main line station⁶⁰

⁵⁹Directory & Chronicle of China , Japan, Corea etc., etc. 1903 and "Deutschland in China 1900-1901"

⁶⁰ "Deutschland in China 1900-1901"



This map, based upon a US Army survey map from the late 1930s, shows the route of the standard gauge branch line from Peitaiho (Beidaihe) station to Peitaiho Beach station which was constructed in 1915. It is most likely that the track bed more or less followed the route of the earlier 600mm gauge line laid by the German military in 1901. This track had been left in situ after their departure for the continued use of the foreign community at Peitaiho beach resort making use of mule-pulled wagons.

After the German troops' withdrawal in 1902, the track remained in place for some years at Beidaihe and European visitors to the seaside resort were conveyed there on push-trolleys and horse-drawn wagons. The alternative to this was to ride from Beidaihe station to the beach resort on donkeys. In 1915 a standard gauge railway branch line was constructed from the main line station to Beidaihe Beach station but this operated only in the summer months.



“Moving house” on the 600mm track at Beidaihe, left by the departing Germans.⁶¹

In the next part we shall look at the Japanese-built 762mm gauge line between Antung and Mukden (Andong and Shenyang).

⁶¹ Author's collection

在营运性准轨铁路大量出现于中国之前的 19 世纪末期，曾有过几条窄轨铁路在这片土地上短暂地停留过。他们其中的有些铁路在近些年的各类文献书籍中被时常提及，但其中的多数则早已湮没于历史之中而不为人知。历经多年的史料收集与研究，柯睿思藉以《中国早期窄轨铁路》系列文章，讲述各条窄轨铁路的兴衰历史。

中国早期窄轨铁路（三）——军用铁路

Peter Crush [柯睿思] Baiyu Shang [尚白宇]

引言

本篇文章分为两个部分，前半部分介绍在 1883 至 1905 年间，各方势力围绕旅顺港修筑的各条军用铁路（在西方海图中被称为“亚瑟港”的旅顺港位于中国东北辽东半岛的最南端，该港起初仅被小型船只作为避风港，后北洋水师在此设立军港）。文章的后半部分将介绍 1900 年八国联军镇压义和拳乱时期，德国部队在中国北方修建的几条军用轻便铁路。

一、旅顺港的军用铁路

由李鸿章于 1880 年代主持修筑的旅顺港军用铁路，是目前已发现的在中国最早修筑，且有遗迹保留至今的窄轨铁路。时任直隶总督¹兼北洋大臣²的李鸿章希冀从西方购入新式铁甲战舰，并以旅顺港作为主要基地，创立一支现代化海军舰队，以巩固大清海防。一些史料指出：英国商团在上海修筑的吴淞铁路，被大清政府于 1877 年赎回并拆除后，吴淞铁路的铁轨、机车等设施器材先被运送至台湾，后又转运至旅顺港（亚瑟港）³，用于筹备旅顺港军用铁路，为旅顺港坞及要塞的修筑工程运输材料。

然而，由于史料缺失的，我们尚未查到有关旅顺港铁路使用吴淞机车的直接证据。但根据已知文献可以确定，吴淞铁路的设备于 1877 年被大清政府购赎、拆除并运往台湾后，一度弃置于某港口，任其风化生锈，未曾启用。我们认为，李鸿章确实将闲置于台湾的吴淞机车及钢轨运回至旅顺港。因为旅顺港工程的经费十分有限，若利用现有的闲置器材，便可避免投入大量经费，购置新的铁路设备。几位台湾铁路历史学者关于吴淞铁路的研究，也印证了我们的观点。⁴

此外，我们发掘到的最有力的间接证据，是 1885 年 1 月 26 日刊登于英文报纸“China Mail”（《中国邮报》）中的一篇新闻短报。该篇报道中提到：在 1884 年末，两台铁路机车在旅

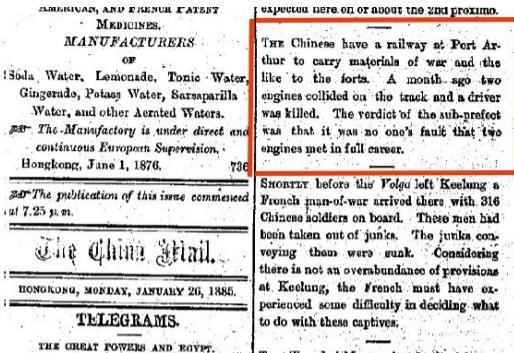
¹ 西方传统上用殖民地总督的英文“Viceroy”指代大清的总督

² 北洋大臣英文译作“Commissioner for Northern Ports”

³ 旅顺港在西方海图上被标记为“亚瑟港”（Port Arthur），该称呼来自于一位名为威廉·亚瑟的英国皇家海军上尉，亚瑟于 1860 年搭乘阿尔及利亚人号皇家炮舰，测绘了旅顺港。中日甲午战争后，旅顺港的英文被音译为“Ryojun”，这来自于“旅顺”的日语发音。

⁴ 吴小红：《重回清代台北车站：古铁道和一座迷样的火车站》，台湾，2006。吴小红曾就吴淞铁路设备去向的问题与柯睿思进行过交流，并指出在 1878 至 1883 年间，《申报》中曾四次提到吴淞铁路的设备被运送至旅顺。

顺港相撞，造成一名外籍司机在事故中丧生。该事故发生在 1880 至 1886 年间，也就是国人在德国顾问的监督下，自行修筑旅顺港的时期。然而直到 1886 年，法国财团接管旅顺港工程之后，才有包括机车在内的大批新购铁路设备运抵旅顺⁵。因此，1884 年发生事故的两台机车，不可能是旅顺港在 1886 年以后购置的新机车，而很有可能就是来自吴淞铁路的旧机车。



1885 年 1 月 26 日的《中国邮报》中关于旅顺港机车相撞事故的新闻。

旅顺港工程于 1886 年更换承包商的原因，是清政府聘请的德国顾问经验不足，港坞工程进展缓慢⁶，大清政府遂决定向国内外招标，为该工程寻求经验丰富的承包商。经过激烈的竞标后，法国工程师特费内特⁷的财团，以最低的价格赢得了旅顺港工程的合同。旅顺军港的主要改造工程包括：开挖一处占地 32 亩名为东港的船港，在东港的北岸建筑一处可停泊新式铁甲舰的干船坞，疏浚进出港的航道，在东港周围修筑有铁路连接的码头区与机器厂，安装蒸汽起重机，兴建鱼雷艇坞及鱼雷营。⁸

我们目前尚未查实，旅顺港在 1884 年之前铺设的轨道，是 600mm 轨距的德科维尔式轨道，还是 2 英尺 (609.6mm) 或 2 英尺 6 英寸 (762mm) 轨距的木枕式轨道。但来自吴淞铁路旧机车的轨距为 762mm，而将该车的轨距改窄绝非易事⁹。由此我们推断，旅顺港工程早期用于施工的铁路，使用的就是 762mm 轨距的木枕式轨道。

在一些绘制于 19 世纪末期的旅顺港地图中，都有标注出港区窄轨铁路的线路图，其中最早的一幅标有铁路的地图，是李鸿章于 1890 年呈报慈禧的“旅顺工程全景刺绣图”。但刺绣图中关于的港坞及铁路的标示，与旅顺港工程竣工时的布置略有出入。在刺绣图中可清晰的看到：港区铁路起始于东港的西北侧，先向东北方向延伸，绕过机器厂与干船坞，再转向东南方向，经东港的东岸及南岸，最后终止于外港的一处铁码头。

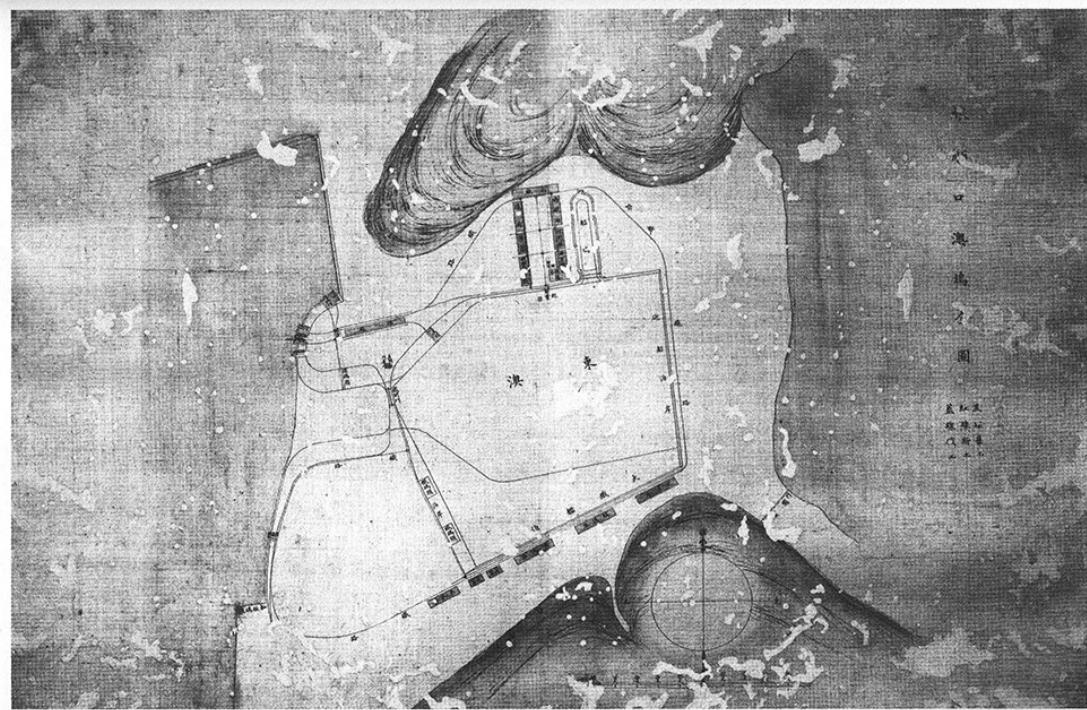
⁵ 英国怡和洋行的档案中可查到，旅顺港曾在 1886 至 1887 年间，通过该洋行购买用于建设港坞铁路的铁轨、机车、转盘等现代铁路设备，而 1884 年旅顺港的铁路事故要更早于这一时间。

⁶ 亨利·达文波特·诺斯洛普：《绚丽的国度：中国，日本及韩国》，1894。

⁷ 根据 1888 年版的《中国，韩国，日本等国编年史》可知，特费内特曾在天津拥有宅邸及办公室，他曾是天津市议会的法籍成员。

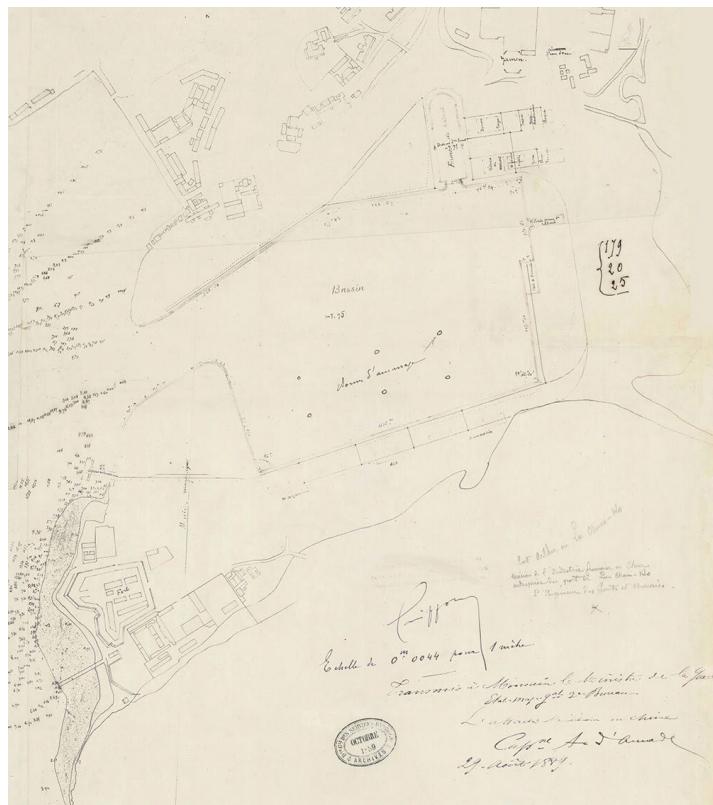
⁸ 詹姆斯·艾伦：《黄龙旗下——中日甲午战争目击记》，纽约，1898。

⁹ 减窄机车的轨距在技术上是非常困难的，因为需要改造机车的车架、锅炉及火箱。而加宽机车的轨距则相对更容易实现。

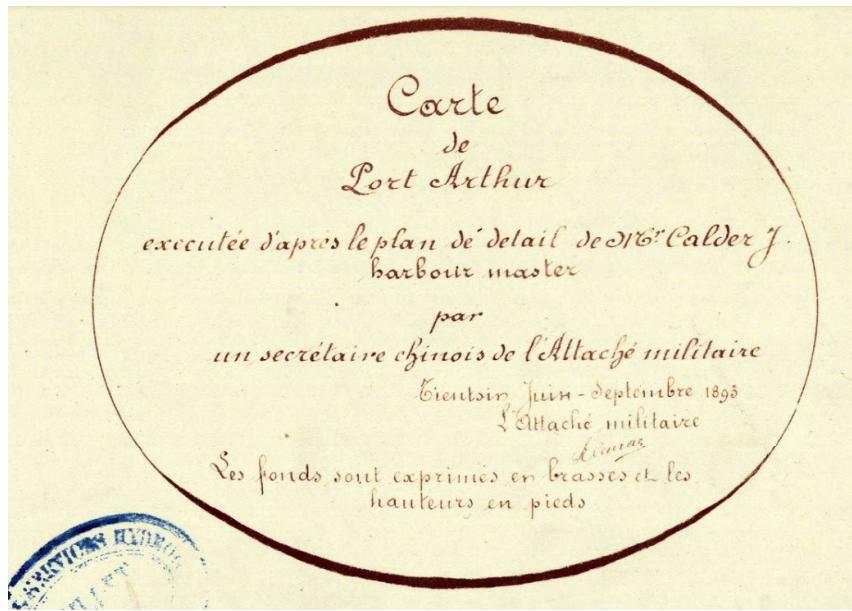


李鸿章呈报慈禧太后的旅顺工程全景刺绣图（一）

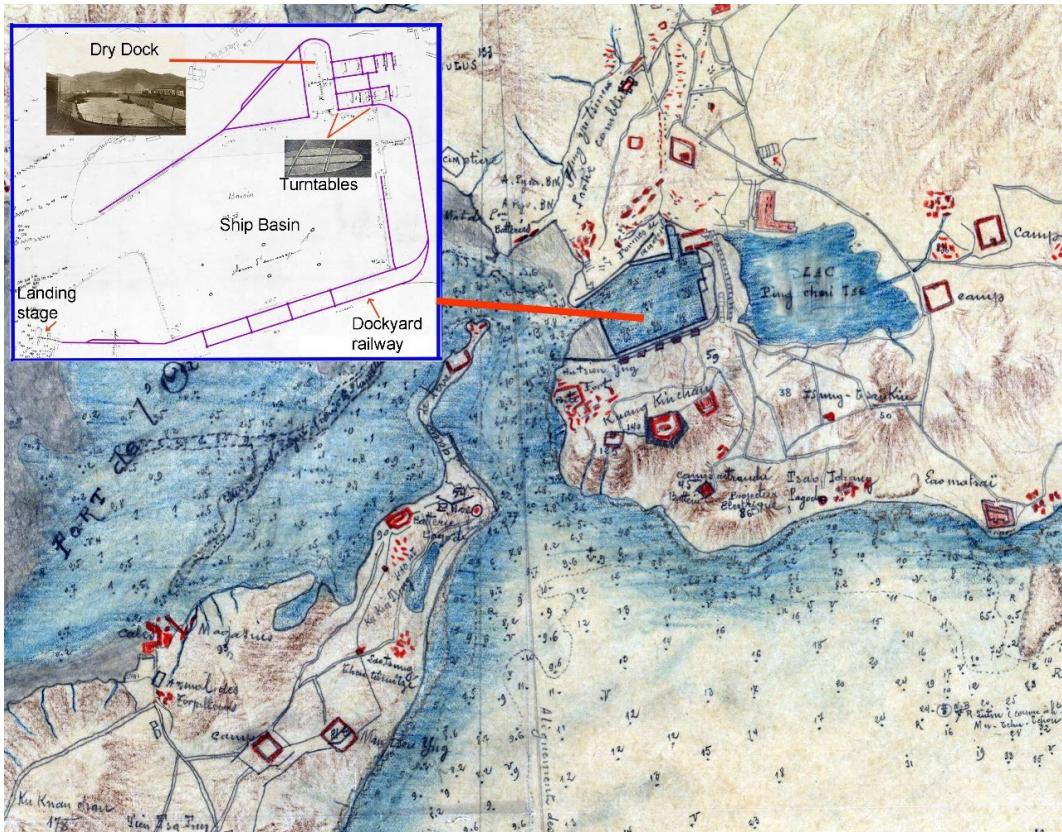
李鸿章于 1890 年呈报慈禧的“旅顺工程全景刺绣图”。



1893 年的旅顺东港地图，该地图由时任旅顺港务长的考尔德根据一张 1889 年的地图手绘而成。图中东港北岸机器厂的布置及铁路的走向，与全景刺绣图略有不同。



1893 年地图中的脚注表明该图由法国驻北京武官处的员工重新绘制，并转交予位于巴黎的法国外交部。¹⁰



左上角的插图在 1893 年地图的基础上，用紫线标注出了旅顺港区铁路的线路图。图中可见位于东港北岸干船坞的东侧的数间机器厂房，由格状的铁路网与转车台相连接。铁路自机器厂向南经过东港的东岸及南岸后，最后终止于东港西南方向的一处铁码头。该铁码头位于旅顺港出海口处的外港，码头对岸则是鱼雷营所在的老虎尾半岛。

¹⁰ 地图来自法国国家图书馆：gallica.bnf.fr

虚假的君士坦丁·冯·汉纳根“将军”/“少校”/“上尉”与“中国东北的第一条铁路”



我们下面将用一些篇幅，讲述一位德国初级军事顾问的荒诞闹剧。君士坦丁·冯·汉纳根（1854-1925 年）曾在中国的洋务运动时期来华担任顾问，并在 1880 年代初，国人自行修筑旅顺港的时期，被聘请设计及监造旅顺港的多处炮台。在汉纳根就任旅顺港技术顾问的期间，有报告称汉纳根曾利用蒸汽挖砂船的废弃零件制作了一台铁路机车，并在旅顺港海军设施的附近，成功地修筑了一条约 1 公里长的铁路，这条铁路被吹捧为“中国东北的第一条铁路”。¹¹



2018 至 2020 年间，英国伦敦的多家著名拍卖行举办了数场中国古董拍卖会，其中的一项拍品为一套大清双龙宝星勋章，该勋章的原主人即为曾被大清政府委以军政重职的君士坦丁·冯·汉纳根。一家拍卖行介绍称：“汉纳根在 1879 年前往中国之前，曾在普鲁士陆军中担任上尉，他来到中国后成为了李鸿章的‘密友’，并被李聘为北洋水师的军事顾问。”在拍卖行对于汉纳根的荒谬介绍中，甚至吹捧到：“汉纳根曾在甲午战争中升任清军‘将军’，同时被任命为清军的‘总司令’。”¹²围绕汉纳根所编造出的谣言，最早出现在一些 19 世纪末的西方报纸中，这些报纸的主旨无非是“汉纳根被大清委任以很高的官职，并在 1894 年的中日甲午海战中表现得十分英勇”。汉纳根在不同的报道中或被称为“上尉”，或被称为“少校”，更有甚者称呼他为“汉纳根将军”，他以“在 1870 年普法战争时期的英勇领导而闻名”。然而这些报纸皆有意或无意地忽略了一个事实：普法战争时期的汉纳根只是个 16 岁的未成年人。

真实的历史是：在 1880 年代，李鸿章为筹备现代化陆军及海军，计划向西方各国聘请一批外籍军事顾问。当这个消息被传至欧洲后，大量能力不佳、图谋不轨的退伍士兵及水手，争先恐后地前往中国，谋求官职。他们经常夸大自己的军事经历，甚至伪造证书，以寻求成为大清政府的外籍顾问，从而领取丰厚的报酬。而君士坦丁·冯·汉纳根，正是这些“冒牌货”中的一员。汉纳根通过其父亲与古斯塔夫·冯·德璀琳¹³家族的世交关系，得到了德璀琳向李鸿章的引荐，并于 1879 年来到中国，在旅顺港工程的早期担任崂律嘴炮台¹⁴的工程顾问。

¹¹ 编委会：《旅顺大坞史（1880 年—1955 年）》，大连出版社，2017。

¹² 参见 <https://www.sothbys.com/en/articles/detring-and-von-hanneken-the-highest-ranking-westerners-in-china> 及 <https://www.antiquestradegazette.com/print-edition/2020/february/2429/coins-medals/chinese-recognition-of-german-contribution/>（2021 年 9 月 15 日下载）。

¹³ 德璀琳在 1880 年代担任过天津市议会主席，投身于天津的市政、邮政、海关、税务、教育、绿化等各项事业。他与李鸿章私交甚笃，曾在多项外交事务中给予李鸿章支持与协助。

¹⁴ 崂律嘴炮台又被成为老驴嘴炮台、老蛎嘴炮台等。

事实上，汉纳根从未官拜至他自封的陆军炮兵上尉一职，他在离开学校后，仅参加过普鲁士陆军学员训练团。在他因打架斗殴、违反军纪被逐出军队之前，汉纳根的军衔从未超过少尉。在此之后，他仅学习了不到一年时间的基础工程学理论，也未曾完成过任何大学课程。¹⁵

汉纳根如愿抵达旅顺港上任技术顾问一职后，利用父亲通过信件提供的技术资料，开展对于炮台工程的设计与监造工作。在此期间，汉纳根还曾尝试过军火生意，企图将一批德造德莱赛式步枪（点火针式步枪）出售予清军部队，然而这笔交易由于武器存在质量问题而未能达成。旅顺工程局逐渐发现汉纳根不仅是技术外行，更不具备任何督办如此庞大工程的能力。1883年底，当更有经验的德国工程军官抵达旅顺港后，汉纳根对于旅顺港工程的重要性与权威性迅速减弱。此后，他仅被委派到旅顺港的外围地区，监造当地的防御工事，未曾取得任何引人关注的成就。1886年，因旅顺港工程进展缓慢，大清政府将该工程交由法国商团承包，包括汉纳根在内的德国技术顾问被完全取代。¹⁶

汉纳根在销声匿迹了几年之后，于1894年重返中国，此时正逢日本入侵朝鲜，藩属国李氏朝鲜政府请求大清出兵支援，中日甲午战争随即爆发。汉纳根再次经由德璀琳的引荐，担任大清政府的军事顾问，并随同入朝清军搭乘租用的英籍商船“高升”号支援朝鲜。然而，1894年7月25日，由四艘舰船组成的清军援朝舰队，于黄海丰岛附近遭遇日本联合舰队第一游击队的三艘巡洋舰，日舰率先开火，引发丰岛海战。¹⁷日巡洋舰“浪速”舰发射鱼雷，击中“高升”号，并引爆其锅炉。汉纳根与“高升”号上的其他清军官兵及英籍船员，纷纷落水，落水者中的多数，因锅炉爆炸受伤。有报道称日舰上的士兵，曾用机枪扫射落入水中及救生艇上的清军官兵。¹⁸

丰岛海战中，日本袭击英国商船的行为，引发了重大的国际外交争端。大清政府及英国都声称：日本联合舰队在中日两国在正式宣战前，偷袭并击沉大清租用的英籍商船“高升”号，违反国际法，中日两国直至丰岛海战结束的数日后才正式宣战。日方则使用谎言及宣传手段，回应中英双方的控诉，并在西方的报纸发文支持“依照国际法处理本次事件”。日方声称，用机枪扫射落水清军官兵的并非日军，而是清军自己在射杀落水的“逃兵”。¹⁹而英国在这次外交争端中，陷入了进退两难的境地。

¹⁵ 参阅：里卡多·麦：《西方顾问与晚清军事的现代化——君士坦丁·冯·汉纳根案例研究》，东北亚历史期刊，第十卷，第2期，2013。

¹⁶ 参阅同上及1887年9月26日出版的《中国邮报》，报道中记录了法国商团接管旅顺港工程之后，德国顾问被辞退。

¹⁷ 参阅：豪兰：《高升号沉没——国际法律、外交，与中日甲午战争》，当代亚洲研究，第42卷，第4期，2008。及1894年7月31日与1894年8月7日的《纽约时报》。

¹⁸ 参阅同上。

¹⁹ 参阅同上。

一方面英国为索要商船及人员损失的赔偿，先后两次命令英国皇家海军进行法庭调查。然而在两次庭审中，幸存者及证人就丰岛海战的事实经过，提供了完全矛盾的证词。汉纳根在丰岛海战中幸存并被救起后，以清军军事顾问——陆军中尉冯·汉纳根的身份，出庭作证。由此可见，汉纳根的实际军衔并不是后来在西方报纸中所声称的“将军”、“少校”、或“上尉”。²⁰

另一方面，因英日两国在“高升”号事件发生前，刚签署过一项缓解两国争端的条约，英国政府希望与日本保持友好关系。因此，尽管一位英国皇家海军上将，曾强烈要求逮捕并以谋杀罪起诉攻击“高升”号的日舰舰长，但日方最终还是在这场外交争端中占据了上风，英国不但未向日本索要赔偿，反而要求大清政府赔付“高升”号的损失。对于在此次事件中损失最惨重的中方而言，英国政府的要求无疑是极其荒谬的。“高升”号被击沉时，在船上的 1176 人中，仅有两名军官、两名航海士官、冯·汉纳根、以及不足 200 名清军官兵幸免遇难。而后，中英两国围绕“高升”号赔款的纷争，持续了数年之久。但随着 1900 年义和拳乱，大清政府向西方各国宣战，并最终战败于八国联军后，大清不得不向英国支付“高升”号的赔款。英国在这场外交争端中，扮演了两面派的角色，将日本击沉“高升”号而引发的外交冲突，归罪于受害一方的中国。²¹



Ding Ruchang 丁汝昌

丰岛海战之后仅一个月，中日双方又于 1894 年 9 月 17 日，在鸭绿江外的海域爆发大东沟海战。²² 在此次海战中，大清北洋水师被日本联合舰队重创，丧失了对于黄海的制海权。海战爆发时，汉纳根恰好与其他几名流离失所的外籍顾问在北洋水师的旗舰“定远”号铁甲舰上。水师提督丁汝昌，在“定远”舰管带刘步蟾的协助下，指挥旗舰作战。管带刘步蟾曾在英国皇家海军的舰船上实习，北洋水师的其他战舰上也都配有英籍或德籍工程师及海军顾问²³，而汉纳根的名字从未正式出现在外籍顾问的名单之中。

大东沟海战中，旗舰“定远”舰在与日舰的数次交战中遭受重创，提督丁汝昌受伤后，管带刘步蟾接替旗舰的指挥权，北洋水师的其他战舰亦在海战中被严重损坏或击沉。次年，在威海卫海战中，刘步蟾下令炸沉受损搁浅的“定远”舰，以免落被日本舰队俘获。刘在当晚吞噬鸦片，自尽殉国，后被大清政府追授为水师提督。在中国与西方的历史档案中，北洋水师各军官的履历与战绩都有详细的记录，但被西方报纸多次吹捧的汉纳根却从未出现在任

²⁰ 参阅同上。在 1890 年代的纽约时报、中国日报等报纸中，有多篇有关冯·汉纳根军衔的报道。如在 1894 年版的《绚丽的国度：中国，日本及韩国》一书中，作者亨利·达文波特·诺斯洛普称，汉纳根在“高升”号事件时的军衔为将军。

²¹ 参阅：豪兰：《高升号沉没——国际法律，外交，与中日甲午战争》，当代亚洲研究，第 42 卷，第 4 期，2008。

²² 大东沟海战亦称黄海海战。

²³ 1894 年的中国编年史名录中收录了北洋水师各舰中外军官的名单。

何水师记录中。²⁴ 报道大东沟海战的一些西方报纸曾吹嘘说：“汉纳根‘上尉’虽在海战中负伤，但他勇敢地接替了受伤的丁提督，指挥整个北洋水师舰队与日舰交战。”²⁵

综上所述，通过其荒诞的事迹可以说明，冯·汉纳根是一位不折不扣的骗子。他善于利用与德璀琳的世交关系，夸大自己能力与官职，吹嘘自己的经历与成就。他所谓“利用蒸汽挖砂船的旧零件制造铁路机车，并建成中国东北第一条铁路”的事迹，也无任何的官方记录。我们认为，汉纳根在监造崂崖嘴炮台时，可能仅在炮台的山坡上，修建了一套简易卷扬装置，用于将建设炮台所用的石料，从山脚抬送至山顶的工地。这种卷扬装置可以很简单地利用挖砂船的锅炉改装而成，仅需要在锅炉的输出轴上安装缆绳卷筒，即可利用蒸汽驱动卷筒、收放缆绳，再用缆绳拖曳运料斗，搬运施工材料。然而这种卷扬装置，并不能被视做铁路系统。

中日甲午战争后的旅顺港，1895-1906 年

中日甲午战争过后，旅顺港以及辽东半岛旋即陷入了连年的战乱，因该港地处军事要地，在短短的 10 年内四度易手。我们依照旅顺港的占领者，按年代顺序，将其总结为三段历史时期：

1、甲午战争后的短暂日据时期：

北洋水师在大东沟海战中战败后，已占据朝鲜全境的日军，进而入侵辽东半岛，并以破竹之势相继攻占金州与大连湾，旅顺港危如累卵。北洋水师为保实力，令旅顺港坞的水师人员，随同各舰船撤往山东。驻守旅顺港防御要塞的清军，见日军攻势过猛，纷纷丢盔弃甲，做鸟兽散。日军则几乎没有受到任何抵抗，就占领了大清政府苦心经营了十余年的旅顺军港及其防御要塞。旅顺港陷落后，日军对当地的平民及留守清兵，进行了极其残忍的大屠杀。因清军未作抵抗，旅顺港内包括港区铁路在内的港坞设施则被完好地保存下来。日军无需做过多维修，即可使用港内留存的设施，休整补给他们的部队。



在日军进攻旅顺港的战役中，日舰曾在旅顺口外海炮击旅顺港的防御阵地，为日本陆军提供炮火支援。法国杂志《插图世界》曾刊登过一幅日军于 1894 年占领旅顺港后，在码头边拍摄的照片。在该照片底部挤满日军的码头处，可看见一条窄轨铁路，该铁路有很大概率就是李鸿章在 1880 年代旅顺港工程时期，主持兴建的港区窄轨铁路。

²⁴ 水师提督丁汝昌亦在威海卫海战中自尽殉国。

²⁵ 在《西方顾问与晚清军事的现代化——君士坦丁·冯·汉纳根案例研究》中，作者提到汉纳根的那些成就与“英雄事迹”都是由他本人或其密友所撰写的。

2、三国干涉后的俄占时期：

大清政府于 1895 年与日本签署《马关条约》，割让包括旅顺港在内的辽东半岛后，立即引起了西方国家的关注。俄罗斯、德国、法国为防止日本扩张，并侵占本国在华的利益，随即向日本施压，令其将辽东半岛归还予大清政府。日本迫于外交压力，于 1895 年 5 月宣布放弃占领辽东半岛。而俄国则借此以迫日还辽有功之名，强迫大清政府将旅顺、大连两港口租予俄国。²⁶ 日本对于西方三国的干涉极为不满，旋即谋划报复，是为日后引发日俄战争的导火索之一。俄国于 1895 年中得到旅顺港的控制权后，立即展开了对于旅顺港坞及防御要塞的修复及改进工程。工程包括新建一处大型海军军部大楼，修葺原北洋水师设施建筑，并将其改造为训练设施及仓库。

我们认为，俄方在建设改造旅顺港时，沿用并延长了 1880 年代旅顺港工程时期修建的窄轨铁路。俄方曾铺设了一条临时窄轨铁路，并使用翻斗轨道车，为他们新建的海军军部大楼运送土石及建筑材料。



俄方在旅顺港东侧新建的海军军部大楼，临时窄轨铁路用于为该建筑运输施工材料。照片中还可看见一辆侧翻于铁路旁的翻斗轨道料车。²⁷

²⁶ 大清政府在甲午战争战败后，于 1895 年 4 月 17 日，与战胜国日本签署《马关条约》。然而，在《马关条约》签署后的不到一个月内，日本政府迫于来自西方国家的外交压力，又于 1895 年 5 月 5 日，被迫与俄、德、法三国签署名为“三国干涉”的公约，并在 1895 年年底，将日军部队全数撤出辽东半岛。

²⁷ 照片来自俄罗斯艺术间博物馆收藏的私人藏品，下载自 <http://collection.kunstkamera.ru/>。感谢谢尔盖·德罗施科夫提供的信息。



俄占时期的旅顺港²⁸



俄占时期旅顺港东港北岸的干船坞，照片中可看到港区窄轨铁路及转车台。

我们尚未找到史料证实，俄方曾在旅顺港铺设过用于连接防御工事及其他设施的永久性窄轨铁路。而在旅顺港的俄占时期，俄方以哈尔滨为中心，分别向东、西、南三个方向，建筑轨距为 5 英尺（1524mm）宽轨的东清铁路。该路由哈尔滨向南延伸的南满支线，于 1898 年 9 月修通至旅顺港。

²⁸ 照片来自俄罗斯艺术间博物馆收藏的私人藏品。

3、日俄战争时期：



旅顺港附近的东清铁路铺设于深堑之中³⁰

傲慢的西方国家一直认为亚洲民族无法在军事上与其匹敌，虽然日本在甲午战争中，击败了大清北洋水师，但西方国家对于亚洲民族的轻蔑态度尚未改观。俄国凭借“三国干涉”公约，迫使日方撤离辽东半岛，强租旅顺、大连两港口，独占中国东北，引发日本的强烈不满。

俄国在东清铁路完工后，继续扩大势力范围，剑指当时被日本完全控制的朝鲜，再度引致日本的不安。日方曾提出承认俄国完全控制满洲²⁹，以换取俄国承认日本完全控制朝鲜半岛，但俄国拒绝了日本的提议，执意沿北纬 39 度线设立缓冲区，与日本共同占用朝鲜半岛。谈判破裂后，日本于 1904 年 2 月 8 日晚间，向驻扎于旅顺港内的俄国东方舰队发动突袭。日俄两国旷日持久的旅顺会战随即爆发，战争持续至 1905 年 1 月 2 日俄军投降。

日俄战争爆发后，日军时隔十年，再次登陆辽东半岛。1904 年 5 月，日本陆军第二军于貔子窝³¹登陆后，向内陆进攻至普兰店，于此沿东清铁路兵分两路，分别向南北进攻俄军。5 月 30 日，日军攻陷大连后，继续南攻，直逼旅顺港。



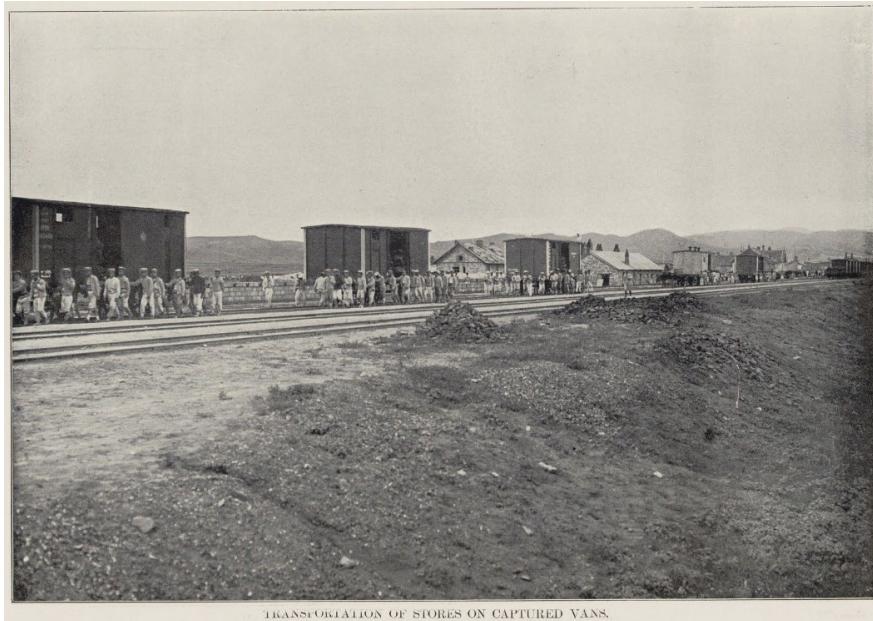
俄军从大连撤退时，自行拆除的东清铁路。照片中可见被俄军遗弃于侧线上的俄罗斯宽轨货车。³²

²⁹ 满洲为中国东北地区的别称。

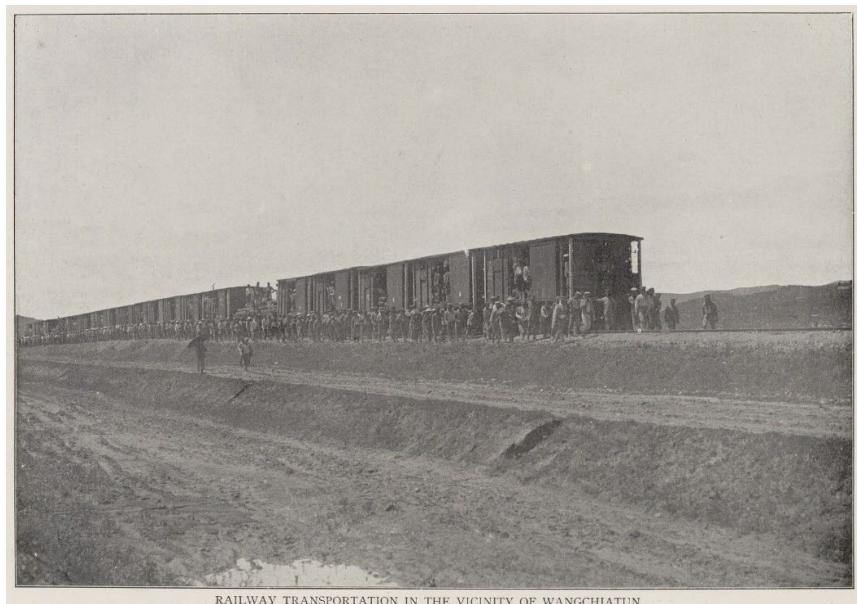
³⁰ 照片来自：朱尔斯·勒格罗：《横跨满洲之旅》，1901-1902 (http://patrimoine.bm-dijon.fr/pleade/img-viewer/EST01103_01/viewer.html?ns=FR212316101_EST01103_01_067.jpg)。照片下载于 2021 年 8 月 20 日。

³¹ 貔子窝，现名皮口镇。

虽然俄军在撤退时，匆忙拆除了东清铁路的轨道，破坏了大批未能撤走的货车厢。但日军为运输部队及物资，修复了被俄军拆除的轨道，以加速对于旅顺战役的部署。因找不到任何可用的机车，日军雇佣当地居民作为苦力，或命令其士兵，以人力拖曳被俄军遗弃的铁路车辆，运送军³³用物资。这些由人力牵引的军用列车，由 20 至 30 节车型组成，每天可行驶约 15 英里。



分开行进的东清铁路车厢，每节车厢由大约 30 名日军士兵通过麻绳拖曳³⁴



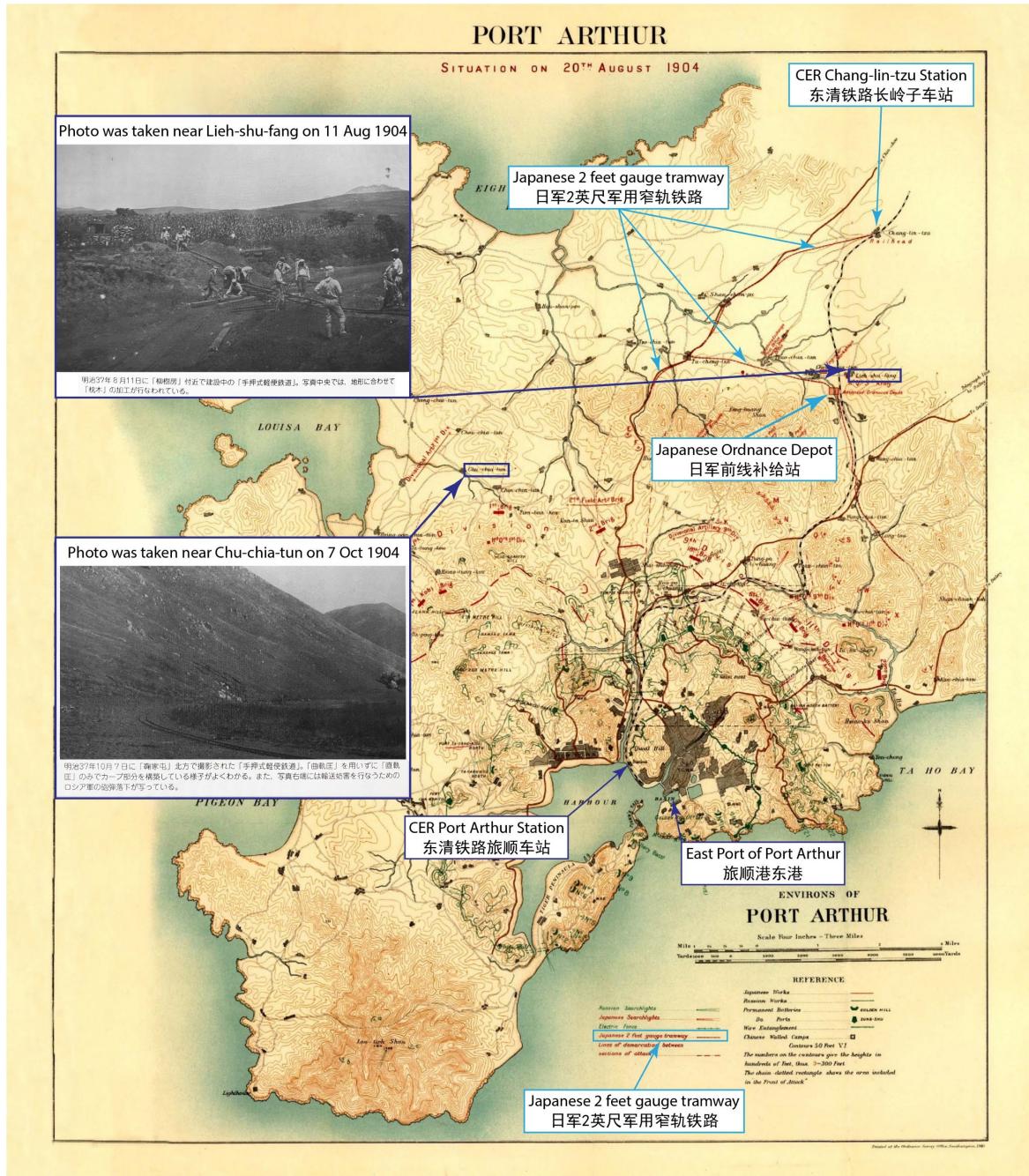
被编程列车行进的铁路车厢，由从当地雇佣的数百苦力拖曳

³² 照片来自柯睿思中国铁路收藏，相册 1，照片 P20/1。

³³ 参阅美军作战部 1906 年 9 月 1 日关于日俄战争的军事观察报告。

³⁴ 两张照片都来自：小川：《日俄战争摄影集》，东京，1905。

然而，这种用人力拖曳列车的军事运输效率低下，日军遂陆续将已占领铁路的轨距，改为日本国铁路所使用的3英尺6英寸（1067mm）的窄轨，以适用由日本运来的机车车辆，开行军用列车。



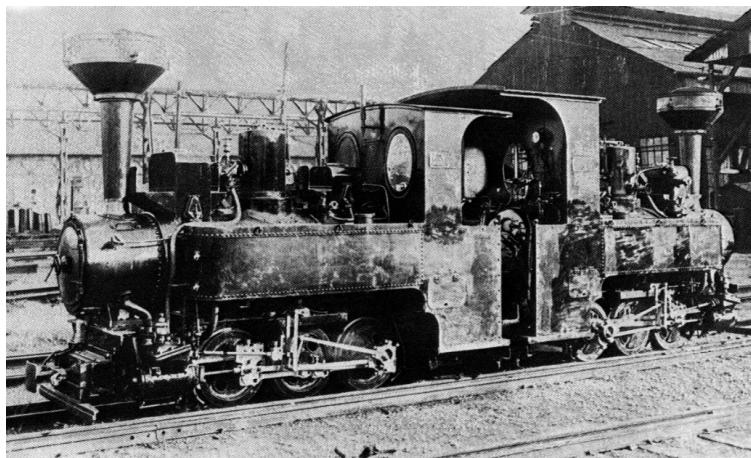
该地图显示了日俄双方于1904年8月20日的战线情形³⁵，绿线为俄军的防线，红色实线则为日军进攻的路线。在地图右上方，可看到日军铺设的2英尺军用窄轨铁路的线路走向。

³⁵ 地图由英国军械测量局绘制。



1904年8月，日本陆军进攻至旅顺港外围的防御阵地。退守进旅顺要塞的俄军，准备依靠精心修筑的要塞工事群，与日军决以死战。持续5个月，伤亡惨重的旅顺攻围战就此打响。日军攻陷旅顺北部的长岭子后，沿东清铁路设立了弹药物资补给站，并以此为起点，展筑了多条临时军用铁路³⁶，用于向各个阵地运送物资。一些西方的军事报告称，日军修筑的临时铁路为2英寸（609.6mm）的窄轨铁路，但根据日本陆军铁道连队的档案可知，用于运输弹药的“手推式轻便铁路”的轨距为600mm。³⁷日军早先在鸭绿江会战中，自登陆点至凤凰城间铺设的窄轨铁路，亦是这种600mm轨距的“手推式轻便铁路”。³⁸

1905年，日军为保障后勤补给，又令铁道连队在新民屯至沈阳间，修筑600mm轨距的“机车式轻便铁路”。³⁹该路（新奉线）于日俄战争结束后的1905年底才建成通车，曾短暂使用过德制0-6-0T式双节蒸汽机车。⁴⁰日军陆军铁道连队在归国前，将“新奉线”移交由“野战铁道提理部”运营。次年，南满洲铁道公司成立并接管“新奉线”后，将轻便铁路扩轨为3英尺6英寸（1067mm）的正规铁路。1907年，该路又被出售予大清政府，成为“关内外铁路”（京奉铁路）最东端的线路。



日俄战争中日军使用的600mm轨距0-6-0T式德制双节蒸汽机车⁴¹

³⁶ 参阅由英国军械测量局绘制的战线形势地图。

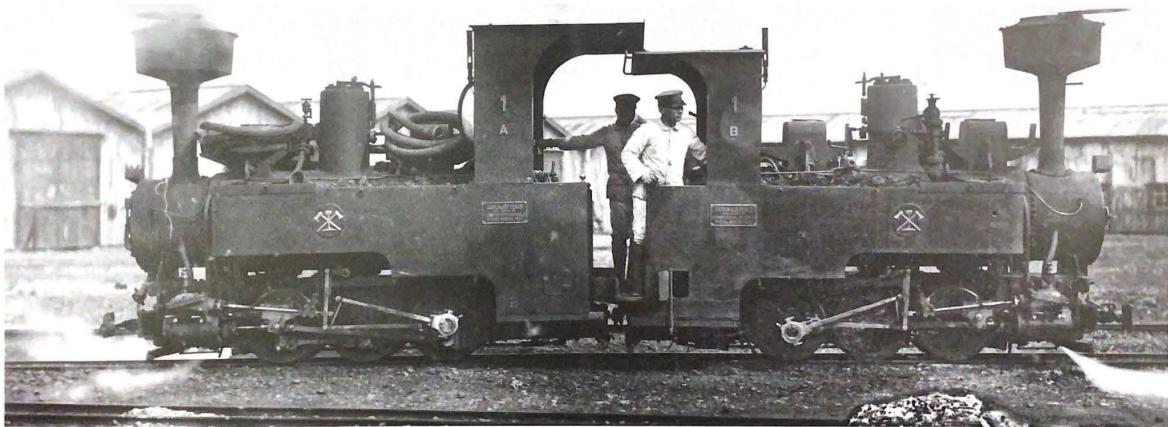
³⁷ 日军在1905年购买了大量德式600mm战地轻便铁路的设备，这其中包括近200组“德制双头窄轨机车”。

³⁸ 参阅美军作战部1906年9月1日关于日俄战争的军事观察报告。

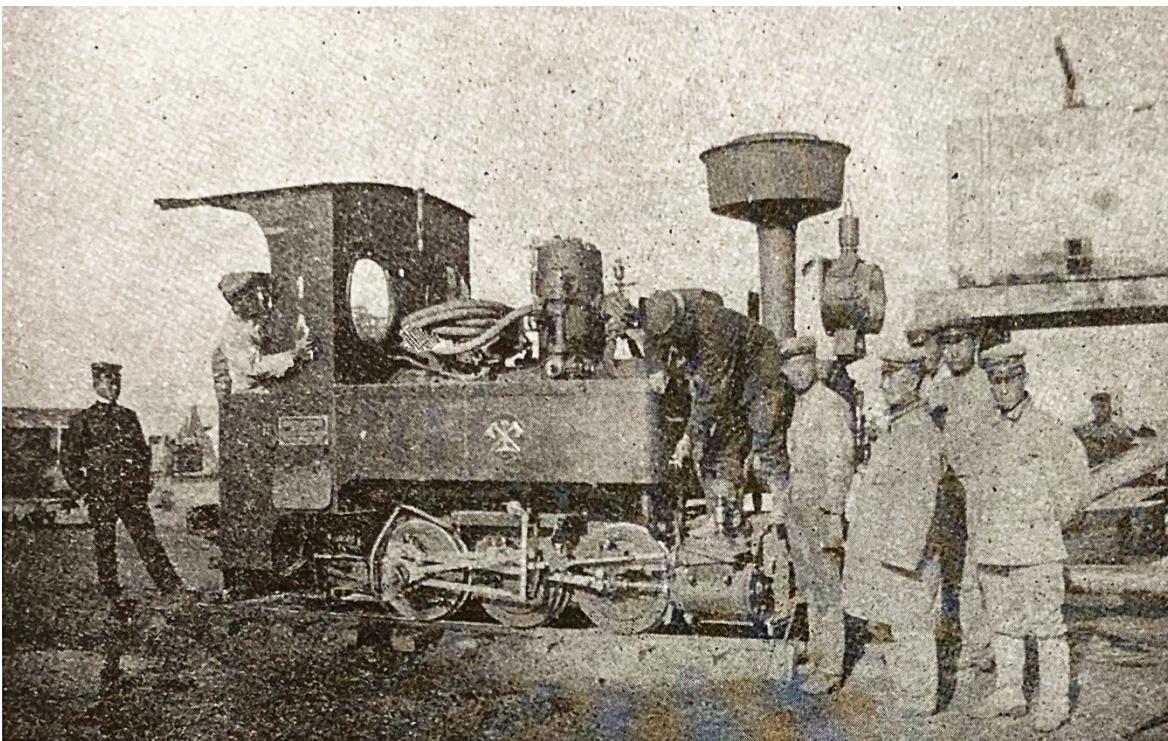
³⁹ 参阅同上。

⁴⁰ 参阅同上。美军工程兵团的J.W.库恩少校在军事观察报告中写到：日军总参谋长儿玉源太郎大将告诉他，日军正在使用蒸汽机车运输物资。但库恩少校在1905年9月考察日军临时军用铁路时，未看见任何的机车与车辆。

⁴¹ 日本铁路学者桂川光广在2011年出版的《中国蒸汽机车表——旧中国编》中提到，只有编号为A87-B87、A89-B89、A140-B140的3组600mm轨距德制双节机车，曾运用于新民屯至沈阳间的“机车式轻便铁路”。



日军铁道连队向德国购买的第一组 0-6-0T 式铁路用双节机车。该组机车由德国克劳斯工厂于 1901 年生产，制造序列号为 4500，日军编号为 1A-1B。⁴²



由于机车短缺，被拆开单独使用的 1A 号 0-6-0T 式蒸汽机车。⁴³

日本陆军于 1905 年 1 月及 3 月，以极其惨烈的伤亡，先后击败了固守旅顺要塞及沈阳的俄军部队。日本海军亦于同年 5 月，在对马海峡全歼了驰援旅顺的俄海军波罗的海舰队。日

⁴² 照片来自：高木宏之：《日本陆军铁道连队写真集》，东京：潮书房光人社，2015，ISBN 978-4-7698-1600-3。

⁴³ 参阅同上。该相册指出，照片中的 1A 号机车曾在新民屯至沈阳间的“机车式轻便铁路”使用，但该论述与桂川光广的信息不符。

俄两国最终在美国总统西奥多·罗斯福的调停下，签署了停战协议。⁴⁴ 而包括旅顺港在内的辽东半岛，乃至整个中国东北地区，开始了长达四十年之久的日占时期。日本在日俄战争结束后，先成立了南满洲铁路公司，以开发铁路的名义，逐渐侵占中国东北的土地与资源。1931年九一八事变后，日本又扶植了满洲国傀儡政权⁴⁵，直至二战结束。战后，苏军又将旅顺港作为其太平洋舰队的军港，占用长达10年之久，直至1955年才将旅顺港归还予中方。

日俄战争期间，日军亦在丹东（安东）至沈阳间，修筑了轨距为2英尺6英寸（762mm）的“安奉线”，并于1904-1905年间，为该线向美国鲍尔温工厂订购了82台水柜式蒸汽机车。我们将在本系列的后续文章中详细介绍这条窄轨铁路。

二、义和拳乱时期⁴⁶，八国联军在中国北部修筑的军用铁路

19世纪末，西方宣教士来华宣教并建立教会后，中国基督徒的数量日渐增加。由于信仰及习俗的改变，黄河北岸的农民时常与中原基督徒爆发冲突，引起宗教案件。1900年，慈禧欲利用先前已被清廷取缔的民间团体“义和团”，牵制在华扩张势力的西方列强。“义和团”进而以“扶清灭洋”的民义，在华北各地大肆破坏铁路设施、焚毁教堂、屠杀宣教士及教民。大量“拳民”涌入北京后，滥杀基督徒与无辜市民，焚烧包括教堂、医院、药房、商店在内的一切西洋事物，并围攻位于东郊民巷的使馆区，欲杀光躲入各国使馆内的洋人。

列强为解救使馆人员及侨民，组成约5万人的“八国联军”，出兵占领中国华北，镇压义和拳民。英军及德军都运来了战地铁路设施，以保证军事运输的畅通。惟英军只携带了少量设备，其中包括几公里长的轨道，以及几台货运车厢。⁴⁷ 而德军则派出了一支专业战地铁路特遣队，该部队最早由11名军官，27名士官，及245名志愿兵组成，并携带有90公里长的600mm德科维尔式拼接轨道，5组双头蒸汽机车，及50辆货运车厢。⁴⁸ 在此之外，其他国家的部队也派出了熟悉铁路维护的陆军工程人员，负责修复北京周边被义和团严重破坏的关内外铁路及卢汉铁路。⁴⁹

⁴⁴ 日俄两国于1905年9月5日，在美国缅因州的海军基地，签署了《朴茨茅斯和约》。

⁴⁵ 满洲国是日本侵占中国东北后，建立的傀儡政权。其领土包括黑吉辽三省全境，以及今内蒙古自治区东部及河北省北部的原热河省地区。

⁴⁶ 义和拳乱又称义和团运动、庚子国变、庚子拳乱、义和团事件等。

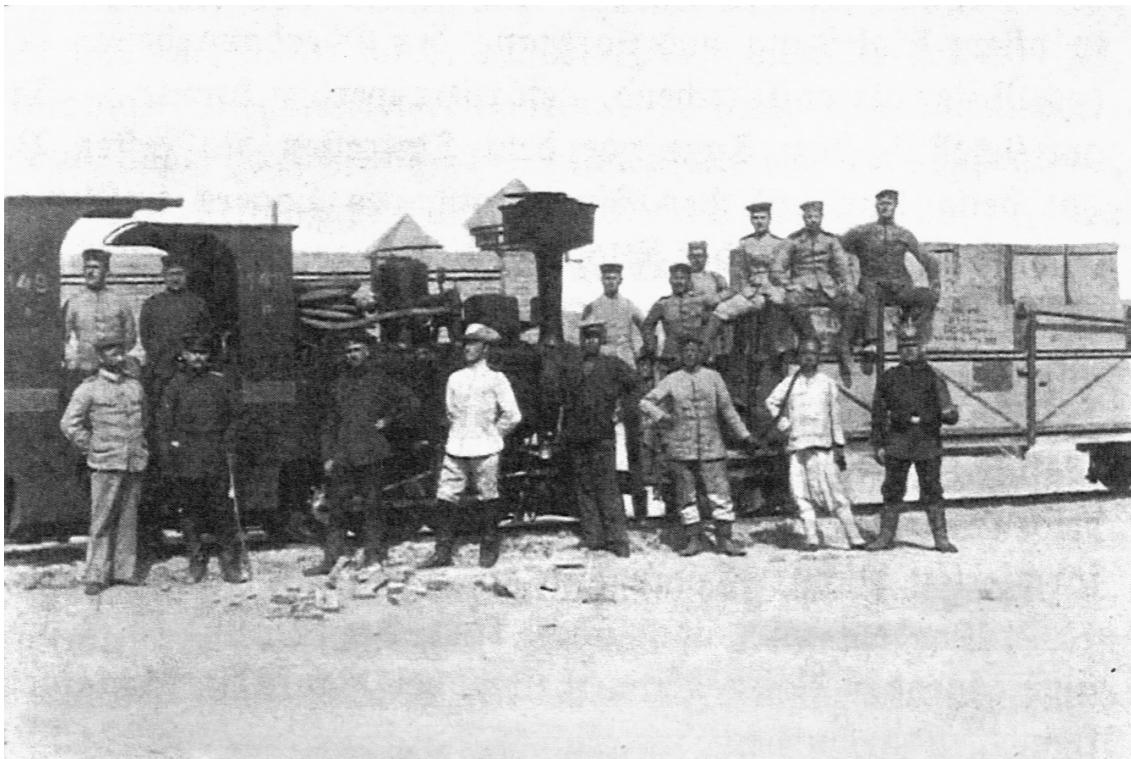
⁴⁷ 参见：斯科特·蒙克利夫上校：《中国北方的工程》，皇家工程兵团杂志，1905年1月。

⁴⁸ 参见：葛德华及其他作者：《赫雷斯费尔德铁路》，中国作战记。

⁴⁹ 关内外铁路是京奉铁路（北京至沈阳）在1897至1907年间的旧称。1900年义和拳乱爆发之时，京奉铁路仅修通北京至锦州间的区段，卢汉铁路（北京至汉口）仅修通北京至保定间的区段。完工于1897年的马家堡车站，为津卢铁路位于北京南郊的起点站。1899年，德国西门子公司还在该站与北京永定门间，修建一条有轨电车线路。不过马家堡车站的英式三层站房，连同有轨电车及丰台机车房，都在1900年5月28日被义和团彻底毁坏。英军皇家工程兵团的廷克汉姆中士，曾用被义和团烧毁机车的残余零件，临时拼凑成了一台被称为“蚂蚱”的简易机车。参见：柯睿思：《一台中国早期机车身世之谜》

（https://www.researchgate.net/publication/350451423_THE_MYSTERY_OF_AN_EARLY_CHINESE_ENGINE）。

八国联军在大沽口登陆后，搭乘关内外铁路的列车抵达天津租界区，并在此设立兵营及武器库，作为进攻北京的前进基地。1900年10月，德军铁路特遣队在天津火车站至海河畔的补给站间，修筑了八国联军在华的第一条战地窄轨铁路。该铁路仅有4至5公里长，包含一座20米长的临时桥梁，起初使用骡马牵引运输弹药的车厢。当250吨的铁路器材于1901年4月运抵后，一组编号为149A-149B的0-6-0T式双节机车被分配给了该路，代替骡马运输弹药及补给。⁵⁰



Feldbahnanbindung Kohlendorf—Peihō—Proviantamt in Tientsin

1901年，天津补给站临时铁路使用的149A-149B号0-6-0T式双节机车（德国亨舍尔厂1900年制，生产序列号5364、5365）。照片中可看到德军铁路特遣队和补给站的士兵，以及600mm轨距的铁轨与车辆。⁵¹

德军部队于1901年4月运来的机车车辆，在德国不来梅装船前，即被拆散为零件，以便长途运输。机车的车架、锅炉、轮对、车轴、轴承、连杆等零件都被单独装箱，惟部分木箱在繁复的装卸转运过程中被遗失或损坏，机械师只得从其他机车上拆借零件，以拼凑起可以运行的完整机车。因零件缺失的原因，德军的双节式蒸汽机车，一度只得拆分为单机使用，直至缺失的零件被代替或修复。⁵²

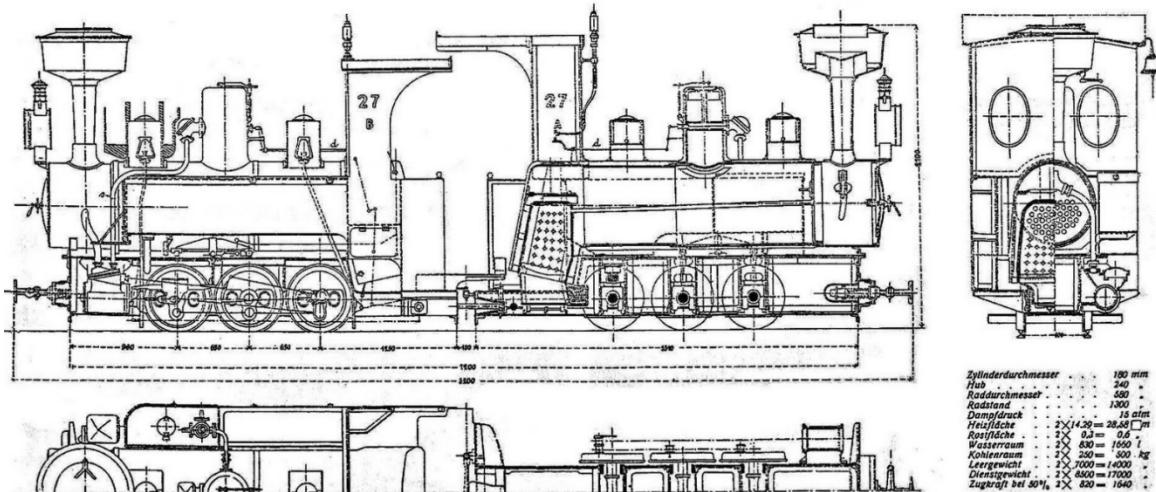
⁵⁰ 参见：（1）葛德华及其他作者：《赫雷斯费尔德铁路》，（2）《中国作战记》（3）德鲁克·冯·奥古斯特：《德国在中国的影响 1900-1901》，柏林，1902。

⁵¹ 照片来自：德鲁克·冯·奥古斯特：《德国在中国的影响 1900-1901》，柏林，1902。

⁵² 参见同上。

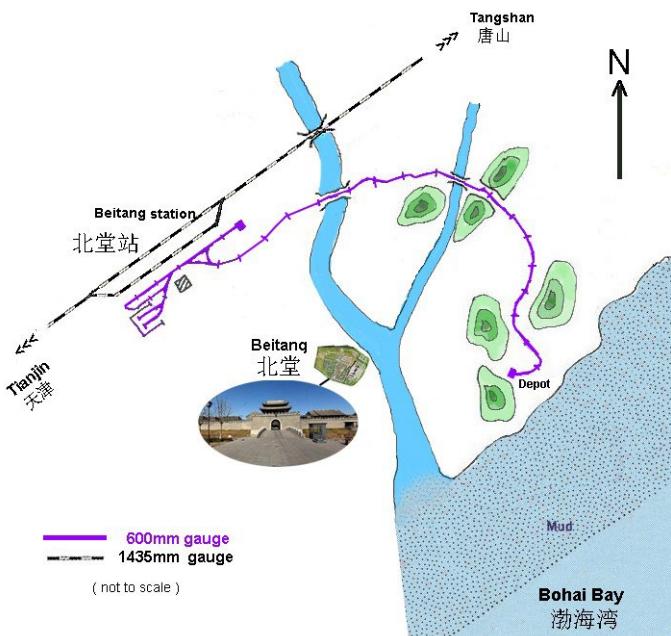
FELDBAHN STANDARD 0-6-0+0-6-0 DOUBLE LOCOMOTIVE

Between 1890 - WW I, the German Army had 182 of these "Zwilling"s built. Each pair consisted of two 60 horse-power units known as "Illing"s. The design catered for the eventuality of one loco failing, then the other engine could still get home safely.



德国 600mm 轨距双节式蒸汽机车的图纸⁵³

不同于“八国联军”中其他国家的部队，德军专门修建了多处设施齐全的高标准军营，以安置该国部队，而非临时征占当地民居。当八国联军击溃义和拳民及清兵，成功解救东郊民巷使馆区的被困人员，并占领华北多地后，联军部队修复并接管了被拳民严重毁坏的华北铁路干线。待局势渐复稳定后，德军将兵营迁移至更宜居的渤海海滨地区，并修筑了三条 600mm 的窄轨铁路，将新建军营与关内外铁路干线相连，以便运送给养及物资。



德军新建的第一个军营选址于天津北塘口旁的海岸，在关内外铁路天津至山海关间的北塘车站东南 7 公里的位置。连接军营与北塘车站的 600mm 窄轨铁路始建于 1901 年 4 月，并在开工后不久即告完工通车。⁵⁴

⁵³ 图纸来自：葛德华及其他作者：《赫雷斯费尔德铁路》。

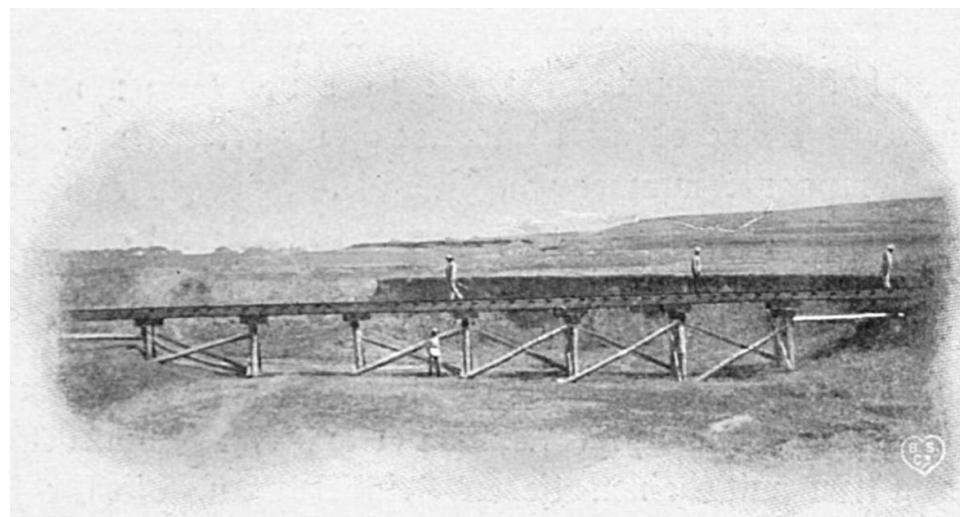
⁵⁴ 地图由柯睿思绘制。

第二个军营位于唐山开平煤矿附近，连接该军营与关内外铁路开平车站的 600mm 窄轨铁路于 1901 年 10 月竣工，总长度为 5 公里。⁵⁵



Feldbahn-Brücke mit Belastung bei Kaiping

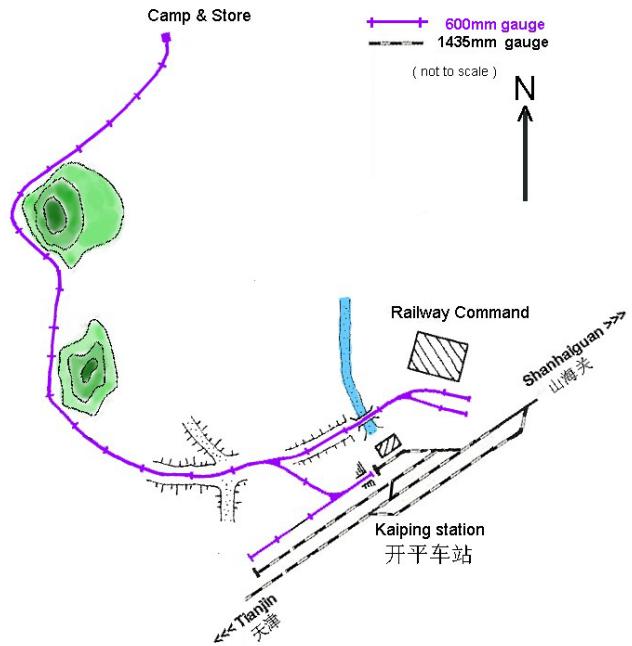
开平军营铁路的工程队。图中可看到被雇佣的中国劳工手持工具，从事繁重的土方工作，而德军士兵则在一旁监工。



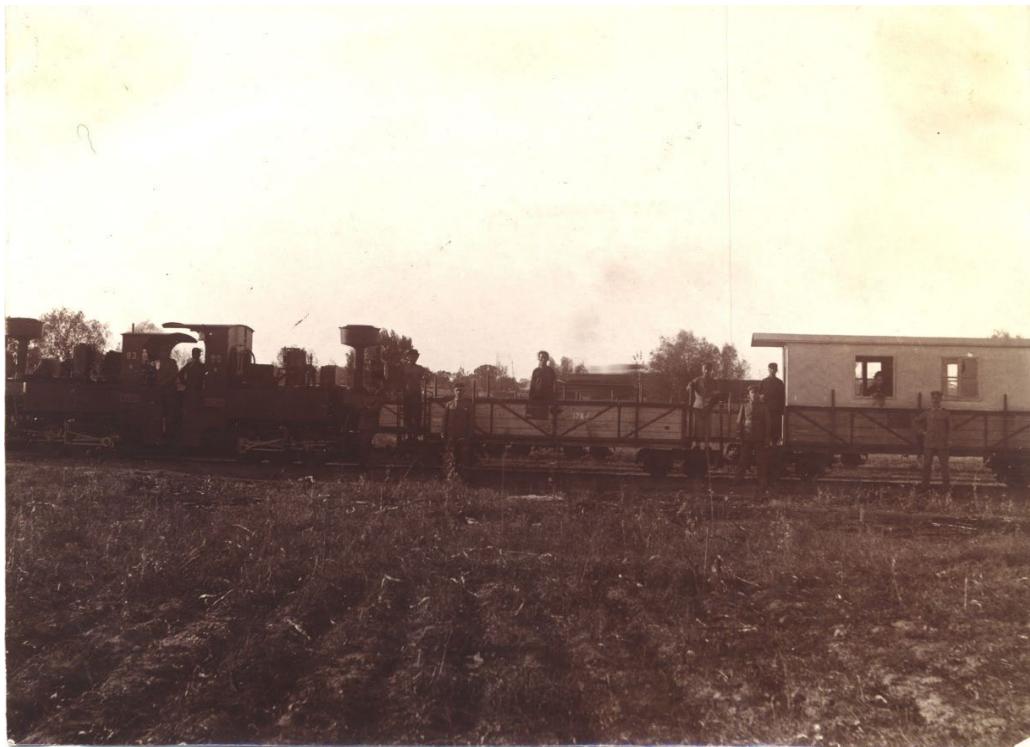
36 Meter-Brücke, Feldbahn Kaiping—Deutsches Lager

开平军营铁路上 36 米长的简易桥梁⁵⁶

⁵⁵ 参见：葛德华及其他作者：《赫雷斯费尔德铁路》。



5 公里长的开平军营铁路的线路图⁵⁷

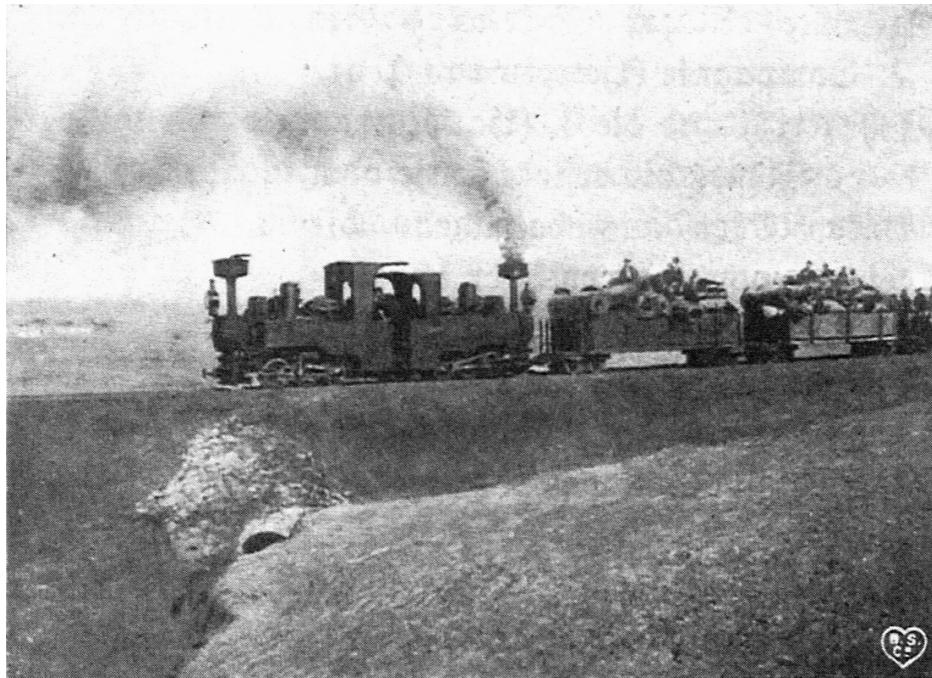


开平军营铁路使用的 80A-83B 号 0-6-0T 式双节机车（德国亨舍尔厂 1894 年制，生产序列号 3947、3954）⁵⁸

⁵⁶ 两张照片来自：德鲁克·冯·奥古斯特：《德国在中国的影响 1900-1901》，柏林，1902。

⁵⁷ 地图由柯睿思绘制。

第三个军营则选址于已被大清开设为“各国人士避暑地”的北戴河地区。完工于 1901 年 1 月的德军军营位于可俯瞰整个海岸的山坡上，配有一条 15 公里长的 600mm 窄轨铁路，连接关内外铁路的北戴河车站。⁵⁹



Feldbahn Pei tha ho—Deutsches Lager

北戴河附近的窄轨铁路，照片中可见为窄轨铁路专门修建的路基以及石拱涵洞。



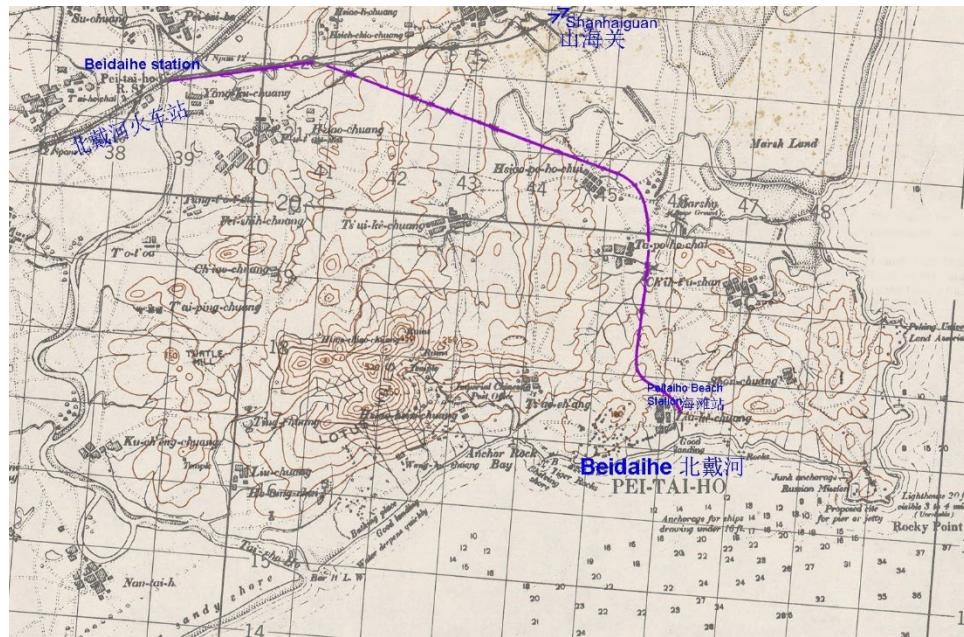
Anfangsbahnhof Pei tha ho

位于关内外铁路北戴河车站的窄轨-准轨转运站⁶⁰

⁵⁸ 照片来自作者私人收藏。

⁵⁹ 参见：多位作者：《中国，韩国，日本等国编年史》，1903；德鲁克·冯·奥古斯特：《德国在中国的影响 1900-1901》，柏林，1902。

1902 年德军从中国华北撤军之后，连接北戴河车站与“各 国人士避暑地”的轨道被保留了下来。在之后的数年里，骡马拖曳的货车继续利用窄轨轨道，为欧洲游客向度假地搬运行李。直至 1915 年，北洋政府修建从京奉铁路北戴河车站通往北戴河度假地的准轨支线，并设立了“北戴河海滩”车站，该支线仅在夏季开行旅游列车。



该图在美军 1930 年代绘制的地图上，标出了京奉铁路北戴河车站、1915 年建成的准轨支线、以及支线南端的北戴河海滩车站。北洋政府于 1915 年修建的准轨支线，与德军在 1901 年修建的 600mm 窄轨铁路的走向大致相同。



德军撤离后，“马拉火车”继续使用被德军留下的 600mm 窄轨铁路，为欧洲游客运送行李。⁶¹

本系列的下篇文章将讲述日军在丹东至沈阳间修筑的 762mm 轨距的“安奉线”。

⁶⁰ 照片来自：德鲁克·冯·奥古斯特：《德国在中国的影响 1900-1901》，柏林，1902。

⁶¹ 照片来自作者私人收藏。